



WAYNE STATE  
UNIVERSITY

Graduate Bulletin  
2024-2025

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# GRADUATE BULLETIN: 2024-2025

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## University Mission

Wayne State's mission is to create and advance knowledge, prepare a diverse student body to thrive, and positively impact local and global communities.

### ***Our vision***

Wayne State will be a pre-eminent, public, urban research university known for academic and research excellence, success across a diverse student body, and meaningful engagement in its urban community.

### ***Our values***

While our vision and mission show where we want to go, our values guide us on the way. They cut across organizational boundaries, bind us culturally, and permeate our strategic and tactical initiatives. They are the defining traits of the Wayne State community.

Collaboration: When we work together, drawing upon various talents and perspectives, we achieve better results.

Integrity: We keep our word, live up to our commitments and are accountable to ourselves and each other.

Innovation: We are unafraid to try new things and learn by both failure and success.

Excellence: We strive for the highest quality outcomes in everything we do.

Diversity and Inclusion: We value all people and understand that their unique experiences, talents and perspectives make us a stronger organization and better people.

Wayne State intends to remain one of the nation's most respected public research universities, and feels that these goals provide a way to make that happen. National recognition is not an end in itself; what matters most is how Wayne State's progress as shaped by these goals will position the university to benefit its students and, ultimately, its city, state, nation and the world.

### ***Accreditation***

Since 1915, Wayne State University has been accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools, one of six regional accrediting agencies in the United States that provides accreditation to colleges and universities at the institutional level.



# Academic Calendar 2024-2025

The following academic calendar includes deadlines for the academic year as determined by full-term classes meeting from the first day through final exams.

**Parts of term/adjusted deadlines:** Some classes may meet for shorter parts of term and their deadlines are adjusted accordingly. Deadlines for these class sections are available in the class details panel (<https://wayne.edu/registrar/classdetails/>) of the schedule of classes.

**Religious holidays:** Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

## Fall Term: 2024

University Year	August 16, 2024
Appointments Begin <sup>1</sup>	
Priority Registration	March 25 - August 18, 2024
Open Registration	August 19-25, 2024
Semester Begins	August 26, 2024
Classes Begin	August 26, 2024
Holiday - University Closed	September 2, 2024
Late Registration and 1st Week Late Add	August 26 - September 2, 2024
Late Registration and 2nd Week late Add Override required	September 3-9, 2024
Last Day for Tuition Cancellation - Full Term Courses/ Census Date	September 9, 2024
Early Assessment/Mid-Term Grading	September 16 - October 16, 2024
Degree Applications Due	September 27, 2024
Holiday - No Classes	October 14-15, 2024
Last Day to Withdraw	November 4, 2024
Federal Election Holiday - University Closed	November 5, 2024
Holiday - No Classes	November 27, 2024
Holiday - University Closed	November 28-30, 2024
Classes End	December 10, 2024

Study Day - Final Exams May Not Be Scheduled	December 11, 2024
Final Exams	December 12-18, 2024
Commencement	December 14, 2024
Semester Ends	December 31, 2024
Holiday - University Closed	December 25, 2024 - January 1, 2025

## Winter Term: 2025

Priority Registration	October 28 - December 29, 2024
Open Registration	December 30, 2024 - January 5, 2025
Semester Begins	January 1, 2025
Classes Begin	January 6, 2025
Holiday - University Closed	January 20, 2025
Late Registration and 1st Week Late Add	January 6-12, 2025
Late Registration and 2nd Week late Add Override required	January 13-17, 2025
Last Day for Tuition Cancellation - Full Term Courses/ Census Date	January 17, 2025
Early Assessment/Mid-Term Grading	January 27 - February 26, 2025
Degree Applications Due	February 7, 2025
Last Day to Withdraw	March 24, 2025
Spring Break - No Classes	March 10-16, 2025
Classes End	April 21, 2025
Study Day - Final Exams May Not Be Scheduled	April 22, 2025
Final Exams	April 23-29, 2025
Semester Ends	April 29, 2025
Commencement	April 30 - May 2, 2025
University Year Appointments End <sup>1</sup>	May 14, 2025

## Spring/Summer Term: 2025

Priority Registration	February 3 - May 1, 2025
Classes Begin	May 2, 2025
Late Registration	May 2-15, 2025
Last Day to Drop w/ Tuition Canceled	May 15, 2025



Holiday - University Closed	May 26, 2025
Day Scheduled as a Monday <sup>2</sup>	May 30, 2025
Degree Applications Due	May 30, 2025
Holiday - University Closed	June 19, 2025
Day Scheduled as a Thursday <sup>2</sup>	June 20, 2025
Census Date	July 1, 2025
Holiday University Closed	July 4, 2025
Last Day to Withdraw	July 10, 2025
Classes End	July 25, 2025
Study Day - Final Exams May Not Be Scheduled	July 26, 2025
Final Exams	July 28-31, 2025

## Spring Term: 2025

Priority Registration	February 3 - May 1, 2025
Classes Begin	May 2, 2025
Late Registration	May 2-8, 2025
Last Day to Drop w/ Tuition Canceled	May 8, 2025
Holiday - University Closed	May 26, 2025
Day Scheduled as a Monday <sup>2</sup>	May 30, 2025
Degree Applications Due	May 30, 2025
Last Day to Withdraw	June 9, 2025
Holiday - University Closed	June 19, 2025
Day Scheduled as a Thursday <sup>2</sup>	June 20, 2025
Classes End	June 20, 2025
Study Day - Final Exams May Not Be Scheduled	June 21, 2025
Final Exams	June 23-24, 2025
Census Date	July 1, 2025

## Summer Term: 2025

Priority Registration	February 3 - May 1, 2025
Degree Applications Due	May 30, 2025
Classes Begin	June 25, 2025
Late Registration	June 25 - July 1, 2025
Last Day to Drop w/ Tuition Canceled	July 1, 2025

Census Date	July 1, 2025
Holiday - University Closed	July 4, 2025
Last Day to Withdraw	July 31, 2025
Classes End	August 12, 2025
Study Day - Final Exams May Not Be Scheduled	August 13, 2025
Final Exams	August 14-15, 2025

<sup>1</sup> University Year Appointments are a full nine months in length.  
Individual service assignments are the responsibility of the appropriate Dean, or, by delegation, the Department Chairperson

<sup>2</sup> An equal number of class days is needed for courses.

# Administration of the University

The general governance of Wayne State University is constitutionally vested in the Board of Governors, consisting of eight popularly elected members and the President of the University, who is named by the elected members. The president is the chief executive officer of the university and is charged by the Board of Governors with responsibility for its administration. For educational and administrative purposes, the university is organized into major academic units — schools, colleges, divisions, centers and institutes. The following schools, colleges and divisions constitute the heart of the University:

Mike Ilitch School of Business  
College of Education  
College of Engineering  
College of Fine, Performing and Communication Arts  
Irvin D. Reid Honors College  
Graduate School  
Law School  
College of Liberal Arts and Sciences  
School of Information Sciences  
School of Medicine  
College of Nursing  
Eugene Applebaum College of Pharmacy and Health Sciences  
School of Social Work

The dean of the college or school is its chief executive officer. More than half the colleges and schools are organized into departments or divisions, each administered by a chairperson (or assistant dean). Academic standards, curricular development, course revision and similar academic matters are the primary responsibility of the faculty and dean of the college or school, although these matters are subject to review and approval by the Provost and Senior Vice President for Academic Affairs and by the President of the University. Major educational policy decisions are also subject to review by the Academic Senate.

The Graduate School is the central unit for the supervision and encouragement of graduate work in the university and has basic responsibility for the improvement and review of existing programs and the approval of new graduate programs. Except for applicants and candidates for the Doctor of Philosophy degree, the detailed supervision of graduate students' work is conducted by the college and school and, where appropriate, by the departments.

All degrees are granted by the university through the colleges and schools, except that the Dean of the Graduate School, with the approval of the Graduate Council, recommends candidates for the Doctor of Philosophy degree.

## Board of Governors

BRYAN C. BARNHILL, II  
MICHAEL BUSUITO  
MARK GAFFNEY  
MARILYN KELLY, Chair  
ANIL KUMAR  
TERRI LYNN LAND  
SHIRLEY STANCATO  
DANA THOMPSON

KIMBERLY ANDREWS ESPY, *ex officio*

## University Leadership

KIMBERLY ANDREWS ESPY, Ph.D., President of the University

LAURIE LAUZON CLABO, Ph.D., Provost and Senior Vice President for Academic Affairs

## Academics and Research

ALI ABOLMAALI, Ph.D., Dean of the College of Engineering  
BORIS BALTES, Ph.D., Associate Provost Faculty Affairs and Associate Vice President of Academic Personnel  
DENISE TALIAFERRO BASZILE, Ph.D., Dean of the College of Education  
RICHARD BIERSEHBACH, J.D., Dean of the Law School  
PAUL BRACKE, Ph.D., Dean of the University Libraries and the School of Information Sciences  
AMANDA BRYANT-FRIEDRICH, Ph.D., Dean of the Graduate School  
JOHN CORVINO, Ph.D., Dean of the Irvin D. Reid Honors College  
HASAN ELAHI, M.F.A., Dean of the College of Fine, Performing and Communication Arts  
R. DARIN ELLIS, Ph.D., Associate Provost for Academic Programs and Associate Vice President for Institutional Effectiveness  
AHMAD EZZEDDINE, Ph.D., Vice President for Academic Student Affairs and Global Engagement  
STEPHANIE HARTWELL, Ph.D., Dean of the College of Liberal Arts and Sciences  
VIRGINIA KLEIST, Ph.D., Dean of the Mike Ilitch School of Business  
SHERYL KUBIAK, Ph.D., Dean of the School of Social Work  
EZEMENARI OBASI, Ph.D., Vice President for Research  
DONYALE R. PADGETT, Ph.D., Interim Associate Provost for Diversity and Inclusion and Chief Diversity Officer  
ROB THOMPSON, Chief Information Officer and Associate Vice President for Computing and Information Technology

## Health

RAMONA BENKERT, Ph.D., Dean of the College of Nursing  
BRIAN CUMMINGS, Ph.D., Dean of the Eugene Applebaum College of Pharmacy and Health Sciences  
WAEEL SAKR, M.D., Dean of the School of Medicine  
MARK SCHWEITZER, M.D., Vice President of Health Affairs

## Business Operations

ROBERT DAVENPORT, Associate Vice President for Facilities Planning and Management  
BETHANY GIELCZYK, M.P.P., Interim Senior Vice President for Business Affairs; Senior Associate Vice President for Finance and Business; Chief Financial Officer  
CAROLYN P. HAFNER, B.B.A., Associate Vice President & Chief Human Resources Officer

## Engagement and Advocacy

PATRICK O. LINDSEY, M.A., Vice President for Government and Community Affairs  
DAVID RIPPLE, M.A., Vice President for Development and Alumni Affairs  
MELISSA SMILEY, Ph.D., Chief of Staff and University Relations Officer  
EDWARD (NED) STAEBLER, M.S., Vice President for Economic Development  
ERIKA WALLACE, M.P.A., Director of Athletics

## University Governance

JULIE MILLER, M.A., University Secretary and Executive Officer to the Board of Governors  
MIKE POTERALA, J.D., Vice President and General Counsel

# General Information

## Mission of the Graduate School

Wayne State University Graduate School provides leadership in advancing academic excellence in graduate and postdoctoral education and cultivates a supportive environment for research, scholarly activities and other creative endeavors that are integral to the success of a diverse body of master's and doctoral students, postdoctoral scholars, and graduate faculty across programs.

## Graduate Council

The Graduate Council, the policy-formulating body for the Graduate School, is composed of two members elected from the regular graduate faculty of each of the various schools and colleges of the University, at least one graduate student member, the Dean of the Graduate School, and three members of the graduate faculty appointed by the Dean of the Graduate School. The Council meets monthly during the academic year, and all meetings are open to the University community.

In 1968, the Board of Governors established the Graduate Council and granted it the "authority and responsibility for the development of basic policies for the graduate education system and for the encouragement, improvement and evaluation of graduate programs throughout the University." In addition to reviewing new and existing graduate programs, the Council sets admission standards for graduate programs, makes recommendations for graduate faculty appointments, establishes criteria and evaluates applications for the Graduate-Professional Scholarship program, and awards all Ph.D. degrees, select master's degrees, and interdisciplinary graduate certificates.

## Graduate Faculty

The Graduate Faculty consists of faculty members who are eminently qualified by virtue of preparation and competence to teach and direct research at the graduate level, according to specific criteria. Appointment to the Graduate Faculty does not modify a faculty member's responsibility to or affiliation with their department, division, college, or other instructional or administrative unit. The Dean of the Graduate School, on behalf of the Graduate Council, may appoint members of the WSU faculty to the Graduate Faculty, upon recommendation of their departments or divisions and with the approval of their deans.

Appointments to the Graduate Faculty are for a period of five years. Upon completion of the term, a qualified candidate may be recommended for reappointment to the Graduate Faculty by the department chairperson and the college dean.

## History and Procedures of the Graduate School

Wayne State University's graduate and professional programs were established early in the history of the University and were unified within the newly-created Graduate School in 1933. Since that time, the Graduate School has grown steadily both in terms of quality and size and now ranks as one of the largest graduate schools in the nation. The University's Carnegie classification is reflective of a deep commitment to excellence in graduate education, relevance in academic curriculum, and leadership in research and scholarship.

The Graduate School is the central unit for the supervision and encouragement of graduate work in the University and has basic responsibility for the improvement and review of existing programs. The Ph.D. degree at Wayne State University is conferred by the Graduate School. The Graduate School monitors every significant stage in the doctoral student's career and ensures that all university-wide

requirements have been fulfilled. Ph.D. plans of work must be approved by the Graduate School, and a Ph.D. applicant cannot advance to Ph.D. candidacy without the Graduate School's approval. After the dissertation defense, the Graduate School conducts a final audit of the student's record to certify them for graduation.

## History of the University

Wayne State University's story begins in 1868 with the founding of the Detroit Medical College, now the School of Medicine. In 1881, the Detroit Normal Training School was established, which is now the College of Education. The now-iconic Old Main Hall was built in 1896 as Central High School, which began adding college classes in 1913. Those classes evolved into the Detroit Junior College (offering a two-year general education program) in 1917, which became the College of the City of Detroit (with four-year degree programs) in 1923, and now is the College of Liberal Arts and Sciences.

In 1924, the College of Pharmacy was organized, and six years later the first regular graduate courses were offered in liberal arts and education. Frank Cody became the first president in 1933, with the existing colleges united into a university organization, eventually named Wayne University, taken from Wayne County in honor of General Anthony Wayne.

Wayne University continued to grow, adding the School of Social Work, the Law School, and the School of Business Administration. In 1956, it was renamed Wayne State University. In 1963, Wayne State was designated one of Michigan's three constitutionally established universities. Wayne State has since grown to become one of the 50 largest public universities in the United States, offering nearly 350 degree and certificate programs through 13 schools and colleges.

## Timeline

1868 — The Detroit Medical College, forerunner of the School of Medicine, was established.

1881 — The Detroit Normal Training School, forerunner of the College of Education, was established.

1917 — The Detroit Junior College, offering a two-year program in general education, was established in 'Old Main' and later developed into the College of Liberal Arts.

1923 — The Detroit Normal Training School became a four-year degree-granting institution under the name of the Detroit Teachers College. The first degrees were granted in 1924. The Detroit Junior College became the College of the City of Detroit with four-year degree programs. The first degrees were conferred in 1925.

1924 — The College of Pharmacy was organized.

1930 — The first regular graduate courses were offered in Liberal Arts and Education. The first Master's degrees were conferred in 1932.

1933 — The College of Engineering and the Graduate School were established.

1933 — The Colleges of Liberal Arts, Education, Engineering, Medicine and Pharmacy and the Graduate School were united by action of the Detroit Board of Education into a university organization, temporarily called the Colleges of the City of Detroit.

1934 — The name Wayne University was adopted, taken from Wayne County and, ultimately, from General Anthony Wayne.

1935 — The School of Public Affairs and Social Work was organized. In 1950 it became the present School of Social Work.

1937 — The Law School, established in 1927 as Detroit City Law School, came into the University.

1945 — The first doctoral programs were authorized in the fields of Chemistry, Physiological Chemistry and Education.

1945 — The College of Nursing, which began as a program in the College of the City of Detroit, became a separate college.

1946 — The School of Business Administration, originating in the College of Liberal Arts, became the tenth academic unit in the University.

1956 — Wayne University became Wayne State University by Act 183 of Michigan Public Acts of 1956.

1959 — Monteith College was established.

1959 — Wayne State University became a constitutionally established University by popularly adopted amendment to the Michigan Constitution.

1964 — The Division of Urban Extension was established.

1973 — The College of Lifelong Learning was established as successor to the Division of Urban Extension.

1973 — The College of Pharmacy and Allied Health Professions was established.

1974 — The College of Pharmacy and Allied Health Professions was formed from merger of the College of Pharmacy and the Division of Allied Health Professions, School of Medicine.

1985 — The School of Fine and Performing Arts and the College of Urban, Labor and Metropolitan Affairs were established.

1989 — The name of the School of Fine and Performing Arts was changed to the College of Fine, Performing and Communication Arts.

1993 — The College of Science was established.

2001 — The name of the College of Pharmacy and Allied Health Professions was changed to the Eugene Applebaum College of Pharmacy and Health Sciences.

2002 — The College of Lifelong Learning was discontinued and its programs transferred to other units.

2004 — The College of Liberal Arts and the College of Science were merged into the College of Liberal Arts and Sciences.

2005 — The College of Urban, Labor and Metropolitan Affairs was discontinued and its programs transferred to other units.

2008 — The Irvin D. Reid Honors College was established.

2009 — The Library and Information Science Program was established as the School of Library and Information Science.

2011 — The Warrior football team made its first appearance in the NCAA Division II championship game.

2014 — The Advanced Technology Education Center opens in Warren, Michigan.

2015 — The Integrative Biosciences Center, a \$90 million facility dedicated to eliminating health disparities in Detroit, opens.

2015 — The name of the School of Business Administration was changed to the Mike Ilitch School of Business.

2017 — The name of the School of Library and Information Science was changed to the School of Information Sciences.

2018 — The Mike Ilitch School of Business opens its new facility.

2019 — Wayne State opens the Anthony Wayne Drive Apartments.

## Location of the University

More than 100 buildings provide housing for the services, instructional and research needs of the University and its students and staff. Most academic and service units of the University are located on the main campus in Midtown Detroit, largely bounded by York Street on the north, Woodward Avenue on the east, Forest Avenue on the south and Trumbull Street on the west. The major classroom, laboratory, library and other academic buildings are located east of the John C. Lodge Freeway; most of the athletics and recreational facilities are on the west side of the freeway.

The School of Medicine and its affiliated teaching hospitals and clinics are located a short distance south and east of the main campus in the Detroit Medical Center. The Eugene Applebaum College of Pharmacy and Health Sciences is also located on the medical campus. The Mike Ilitch School of Business is located south of main campus in the District Detroit area. Certain smaller instructional and service units are located in other parts of the metropolitan area.

# Accreditation

Wayne State University as a whole is accredited as a doctoral degree-granting institution by the regional accrediting agency:

The Higher Learning Commission  
230 South LaSalle St., Suite 7-500  
Chicago, Illinois 60604-1411  
telephone: 800-621-7440

In addition, many specific programs and curricula are accredited individually by specialized or professional accrediting agencies. A report is produced annually for the Board of Governors which designates the accrediting agencies of the University's programs; the report is available from the Office of the Provost (<https://provost.wayne.edu/apr/accreditations/>). The principal accreditation agencies are as follows:

Accreditation Statuses (as of December 2023)				
S/C/D	Program(s)	Accreditor	Accreditation Status	Accredited Through
<b>Institutional Accreditation</b>				
WSU	Wayne State University	The Higher Learning Commission	Accredited	2026-2027
<b>Mike Ilitch School of Business</b>				
MISB	Baccalaureate Programs Graduate Programs	The Association to Advance Collegiate Schools of Business (AACSB)	Accredited	2025
<b>College of Education</b>				
ED	All teacher education certification programs	Council for the Accreditation of Educator Preparation (CAEP)	Accredited	November 2024
ED	MA & M.Ed in Art Therapy	Commission on Accreditation of Allied Health Education Programs (CAAHEP)	Accredited	September 2030
ED	Counselor Education (MA, Ed.D. and Ph.D.)	Council for Accreditation of Counseling and Related Educational Programs (CACREP)	Accredited	October 2024
ED	Counseling Psychology (Ph.D.)	American Psychological Association (APA)	Under review for accreditation, on contingency	Applying for Initial Accreditation
ED	BS in Exercise and Sport Science	Commission on Accreditation of Allied Health Education Programs (CAAHEP)	Accredited	2024  (Letting expire and will not be pursuing further)
ED	MS in Athletic Training  ( <i>program discontinued effective Fall 2024</i> )	Commission on Accreditation of Athletic Training Education (CAATE)	Accredited	2025
ED	MEd Learning Design and Technology	Association for Educational Communications and Technology (AECT)	Endorsement approved	2026
<b>College of Engineering</b>				
EN	Division of Engineering-Undergraduate Programs: Biomedical Engineering Chemical Engineering Civil Engineering Electrical Engineering Industrial Engineering Mechanical Engineering	Accreditation Board of Engineering & Technology, Inc. (ABET, Inc.) – Engineering Accreditation Commission	Accredited	September 2025

EN	Division of Engineering Technology-Undergraduate Programs: Electrical/Electronic Engineering Technology Mechanical Engineering Technology	Accreditation Board of Engineering and Technology (ABET) – Engineering Technology Accreditation Commission	Accredited	September 2025
EN	Computer Science-Undergraduate Programs	Accreditation Board of Engineering and Technology (ABET) – Computing Accreditation Commission	Accredited	September 2025
<b>College of Fine, Performing and Communication Arts</b>				
FPCA	BFA and BS in Dance	National Association of Schools of Dance (NASD)	Withdrew membership during the 2022-23 academic year	
FPCA	BA/BM in Music MA/MM in Music	National Association of Schools of Music (NASM)	Accredited	2031-2032
FPCA	Bachelor of Arts in Communication (Public Relations concentration)	The Public Relations Society of America	Certified	2027-2028
<b>School of Information Sciences</b>				
SIS	Master of Library and Information Science	American Library Association (ALA)	Accredited	September 2025
<b>The Law School</b>				
LAW	The Law School	American Bar Association (ABA)	Accredited	2024-25
<b>College of Liberal Arts and Sciences</b>				
CLAS	Bachelor of Science in Chemistry	American Chemical Society	Approved	2027
CLAS	Bachelor of Science in Biochemistry and Chemical Biology	American Society for Biochemistry and Molecular Biology	Approved	2029
CLAS	Doctor of Audiology	American Speech-Language-Hearing Association (ASHA)	Accredited	2025
CLAS	M.A. - Speech-Language Pathology	American Speech-Language-Hearing Association (ASHA)	Accredited	2030
CLAS	Nutrition and Food Sciences Coordinated Program in Dietetics	Accreditation Council for Education in Nutrition and Dietetics (ACEND)	Accredited	2030
CLAS	Psychology Clinical Training Program	American Psychological Association (APA)	Accredited	2028
CLAS	Master of Public Administration	Network of Schools of Public Policy, Affairs, and Administration (NASPAA)	Accredited	2027
CLAS	Master of Urban Planning	Planning Accreditation Board (PAB)	Accredited	2026
<b>School of Medicine</b>				
SOM	Continuing Medical Education for M.D.s	Accreditation Council for Continuing Medical Education (ACCME)	Accredited	March 2028
SOM	Master of Science in Genetic Counseling	Accreditation Council for Genetic Counseling	Accredited	2028
SOM	Graduate Medical Education Program	Accreditation Council for Graduate Medical Education, (ACGME)	Accredited	Effective 2024
SOM	Master of Public Health	Council on Education for Public Health (CEPH)	Accredited	2024
SOM	Doctor of Medicine Degree Program (M.D.)	Liaison Committee on Medical Education (LCME)	Accredited	2030-2031



SOM	Medical Physics (MS, PhD, DMP, Graduate Certificate)	Commission on Accreditation of Medical Physics Educational Programs (CAMPEP)	Accredited	2026
SOM	Radiation Oncology Physics Residency Program	Commission on Accreditation of Medical Physics Educational Programs (CAMPEP)	Accredited	2026
<b>College of Nursing</b>				
CON	Baccalaureate Programs Master of Science in Nursing Doctor of Nursing Practice	Commission on Collegiate Nursing Education (CCNE)	Accredited	December 2033
CON	MSN Nurse-Midwifery Program	Accreditation Commission for Midwifery Education (ACME) Nurse-Midwifery Option	Accredited	December 2033
<b>Eugene Applebaum College of Pharmacy and Health Sciences</b>				
EACPHS	BS Medical Laboratory Science  (formerly Clinical Laboratory Science)	National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)	Accredited	2029
EACPHS	BS Mortuary Science	American Board of Funeral Service Education, Inc. (ABFSE)	Accredited	2030
EACPHS	Nurse Anesthesia Master of Science DNAP	Council on Accreditation of Nurse Anesthesia Educational Programs (COA)	Accredited	2024
EACPHS	Occupational Therapy Master of Science	American Council on Occupational Therapy Education (ACOTE)	Accredited	May 2024
EACPHS	Pathologists' Assistant Master of Science	National Accrediting Agency for Clinical Laboratory Science (NAACLS)	Accredited	October 2027
EACPHS	Pharmacy Doctor of Pharmacy (PharmD Program)	American Council on Pharmaceutical Education (ACPE)	Accredited	June 2024
EACPHS	Doctor of Physical Therapy	Commission on Accreditation in Physical Therapy Education (CAPTE)	Accredited	December 2030
EACPHS	MS Physician Assistant Studies	Accreditation Review Committee on Education for the Physician Assistant, Inc. (ARC-PA)	Accredited - Probation	March 2025
EACPHS	BS Radiation Therapy Technology	Joint Review Committee on Education in Radiologic Technology (JRCERT)	Accredited	May 2024
EACPHS	BS Radiologic Technology	Joint Review Committee on Education in Radiologic Technology (JRCERT)	Accredited	September 2027
<b>School of Social Work</b>				
SW	Bachelor of Social Work Master of Social Work	Council on Social Work Education (CSWE)	Accredited	June 2024

# University Policies

## University Equality of Opportunity Policy

Wayne State University is committed to a policy of non-discrimination and equal opportunity in all of its operations, employment opportunities, educational programs and related activities.

This policy embraces all persons regardless of race, gender, color, sex (including gender identity), national origin, religion, age, sexual orientation, marital status, familial status, disability, arrest record, weight, qualified Vietnam era veterans, qualified special disabled veterans, recently separated veterans and other protected veterans, or any other characteristic protected by applicable federal or state law. It expressly forbids discrimination, sexual harassment or any form of harassment in hiring, terms of employment, tenure, promotion, placement and discharge of employees, admission, training and treatment of students, extra-curricular activities, the use of University services, facilities and in the awarding of contracts.

This policy also forbids retaliation and/or any form of harassment against an individual as a result of filing a complaint of discrimination or harassment, or participating in an investigation of a complaint of discrimination or harassment.

Wayne State University, as an equal opportunity/affirmative action institution, complies with all applicable federal and state laws regarding non-discrimination and affirmative action. In furtherance of this policy, the University is also committed to promoting institutional diversity to achieve full equity in all areas of University life and service and in those private clubs and accommodations that are used by University personnel. No off-campus activities sponsored by or on behalf of Wayne State University shall be held in private club facilities or accommodations which operate from an established policy barring membership or participation on the basis of race, color, sex (including gender identity), national origin, religion, age, sexual orientation, familial status, marital status, height, weight, disability or veteran status. Affirmative action procedures, measures and program may be used to the extent permitted by law to establish, monitor and implement affirmative action plans for all budgetary units and the University as a whole.

Inquiries regarding equal opportunity Academic/Administrative policies or complaints may be made to:

Office of Equal Opportunity  
4324 Faculty/Administration Building  
Wayne State University  
Detroit, Michigan 48202  
Telephone: 313-577-2280  
or <http://www.oeo.wayne.edu>

## Disability Non-Discrimination Policy

In accordance with federal requirements of the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973, there shall be no discrimination on the basis of disability in Wayne State University's programs, operations and activities, in the hiring, terms and conditions or privileges of employment or any matter directly or indirectly related to such employment, or in the admission, education and treatment of students. The Student Disability Services Office (<http://studentdisability.wayne.edu/>) has complete information on services available to students.

## Drug and Alcohol Free Workplace Policy

Wayne State University is committed to providing a drug-free environment for its faculty, staff, and students. The Board of Governors

has made this commitment a formal policy of the University. All faculty, staff and students must abide by the terms of the Board policy as a condition of employment or enrollment at the University. The unlawful possession, use, distribution, sale or manufacture of drugs or alcohol is prohibited on University premises, at University activities, and at University work sites.

Pursuant to that policy, the unlawful possession, use, distribution, dispensation, sale or manufacture of any illicit drugs, and the unlawful possession, use or distribution of alcohol on University property, or at any University work site, or as part of any University activity, is prohibited.

Any employee or student employee who is convicted of a criminal drug offense occurring at the workplace is subject to appropriate employee discipline in accordance with established University policies and collective bargaining agreements, and may be required to participate satisfactorily in a drug abuse or rehabilitation program as a condition of further employment or enrollment.

Any student or employee who, while on University premises or at any University activity, engages in the unlawful possession, sale, manufacture, distribution, or use of drugs or alcohol shall be subject to appropriate sanctions, in accordance with established University policies, the Student Code of Conduct, and collective bargaining agreements, and in conformity with local, state and federal law, up to and including expulsion or termination.

The University encourages employees who may have a problem with the use of illicit drugs or with the abuse of alcohol to seek professional advice and treatment. Individuals who seek assistance with such problems may obtain additional information on a confidential basis by telephoning the Employee Assistance Program (EAP) at 1-800-448-8326. Students may also seek referral assistance by contacting University Counseling and Psychological Services (CAPS), at 313-577-3398.

## Policy Governing the Use of Alcoholic Beverages on Campus

The use or possession of alcoholic beverages is expressly prohibited in classrooms, lecture halls, laboratories, the libraries, the chapel and within buildings or arenas where athletic events, lectures, and concerts are held. The use of alcoholic beverages is expressly prohibited in all public areas of campus buildings except as follows: the use of alcoholic beverages, subject to State law, is permitted in areas designated by, and with the approval of, the Office of the President, and the use of alcoholic beverages at student social events, subject to State law, is permitted in areas designated by, and with the approval of, the Office of the President.

## Sexual Discrimination, Harassment, and Assault Policy

Title IX of the Education Amendments of 1972 is a federal civil rights law that prohibits discrimination on the basis of sex in education programs and activities. Under Title IX, discrimination on the basis of sex includes sexual harassment.

**Sexual discrimination** is prohibited by Title IX and by University Policy. (WSU Statute 2.28.01).

**Sexual harassment** is a form of sex discrimination that is prohibited by Title IX and by the University's Interim Title IX Policy [cite]. It is the policy of Wayne State University that no member of the University community may sexually harass another. (WSU Statute 2.28.06).



Under the regulations that went into effect on August 14, 2020, and which are reflected in the Interim Title IX Policy, “sexual harassment” means conduct on the basis of sex that satisfies one or more of the following:

1. An employee of the University conditioning the provision of an aid, benefit, or service of the University on an individual's participation in unwelcome sexual conduct;
2. Unwelcome conduct determined by a reasonable person to be so severe, pervasive, and objectively offensive that it effectively denies a person equal access to the University's education program or activity; or
3. “Sexual assault” as defined in 20 U.S.C. 1092(f)(6)(A)(v), “dating violence” as defined in 34 U.S.C. 12291(a)(10), “domestic violence” as defined in 34 U.S.C. 12291(a)(8), or “stalking” as defined in 34 U.S.C. 12291(a)(30).
  - a. sexual assault - The term “sexual assault” means an offense classified as a forcible or nonforcible sex offense under the uniform crime reporting system of the Federal Bureau of Investigation.
  - b. dating violence – violence committed by a person who is or has been in a social relationship of a romantic or intimate nature with the victim; and where the existence of such a relationship shall be determined based on a consideration of the following factors:
    - i. The length of the relationship.
    - ii. The type of relationship.
    - iii. The frequency of interaction between the persons involved in the relationship.
  - c. domestic violence – includes felony or misdemeanor crimes of violence committed by:
    - i. a current or former spouse or intimate partner of the victim,
    - ii. by a person with whom the victim shares a child in common,
    - iii. by a person who is cohabitating with or has cohabitated with the victim as a spouse or intimate partner,
    - iv. by a person similarly situated to a spouse of the victim under the domestic or family violence laws of the jurisdiction receiving grant monies, or
    - v. by any other person against an adult or youth victim who is protected from that person's acts under the domestic or family violence laws of Michigan.
  - d. Stalking - means engaging in a course of conduct directed at a specific person that would cause a reasonable person to fear for his or her safety or the safety of others; or suffer substantial emotional distress.

For the purpose of the Interim Title IX Policy, “consent” means knowing, voluntary and clear permission by word or action to engage in sexual activity. Since individuals may experience the same interaction in different ways, it is the responsibility of each party to determine that the other has consented before engaging in the activity. Consent cannot be given if force, coercion, or incapacitation as defined below are present:

1. **Force** is the use of physical strength or action (no matter how slight), violence, threats of violence or intimidation (implied threats of violence) as a means to engage in sexual activity. A person who is the object of actual or threatened force is not required to physically, verbally or otherwise resist the aggressor.
2. **Coercion** is unreasonable pressure for sexual activity. Coercive conduct differs from seductive conduct based on factors such as the type and/or extent of the pressure used to obtain consent. When someone makes it clear that they do not want to engage in certain sexual activity, that they want to stop, or that they do not want to go past a certain point of sexual interaction, continued pressure beyond that point can be coercive.

3. **Incapacitation**– A person is incapacitated when they are unable to understand what is happening or is disoriented, helpless, asleep, or unconscious, for any reason, including by alcohol or other drugs. Incapacitation is determined through consideration of all relevant indicators of an individual's state and is not synonymous with intoxication, impairment, blackout, and/or being drunk.

## Reporting Sexual Misconduct

There are several options for reporting sexual misconduct:

### Title IX coordinator

All reports of sexual misconduct, including sex discrimination, sexual harassment and retaliation, may be made to the university's Title IX coordinator:

Brandy Banks, Title IX coordinator  
656 W. Kirby,  
Suite 4249 Faculty/Administration Building  
Detroit, MI 48202  
Phone: 313-577-9999  
Email: [titleix@wayne.edu](mailto:titleix@wayne.edu)  
Website: <https://titleix.wayne.edu/>

### Deputy Title IX coordinators

These University officials are available to assist individuals with reporting sexual harassment, seeking supportive measures and filing a formal complaint.

**Deputy Title IX coordinator for students:** David J. Strauss, Ph.D.,  
Dean of Students 301 Student Center Building 5221 Gullen Mall  
Detroit, MI 48202 313-577-1010 [davidstrauss@wayne.edu](mailto:davidstrauss@wayne.edu).

**Deputy Title IX coordinator for employees:** Shalandria Cooper,  
OEO lead secretary Office of Equal Opportunity 656 W. Kirby, Suite  
432442 Detroit, MI 48202 313-577-2280 [oeo@wayne.edu](mailto:oeo@wayne.edu).

**Deputy Title IX coordinator for athletics:** Theresa Arist, Senior  
Woman Administrator/Associate Athletics Director 5101  
John C. Lodge 101 Matthaei Detroit, MI 48202 313-577-4282  
[theresa.arist@wayne.edu](mailto:theresa.arist@wayne.edu).

**Deputy Title IX coordinator for the School of Medicine:** Dr. Beena  
G. Sood, Associate Dean for Professional Development, School  
of Medicine Scott Hall, Room 1310 540 E. Canfield St. Detroit, MI  
313-577-9877 [bsood@med.wayne.edu](mailto:bsood@med.wayne.edu).

**Deputy Title IX coordinator for residential life:** Nikki Dunham,  
Director of residential Life, 582 Student Center Building 5221 Gullen  
Mall Detroit, MI 48202 313-577-2116 [ndunham@wayne.edu](mailto:ndunham@wayne.edu).

### WSU Police

Individuals are encouraged to report sexual misconduct that may also violate criminal law to the Wayne State police at 313-577-2222.

## Violence in the Workplace Policy

Wayne State University is committed to providing a work and educational environment that is free from threats, assaults, or acts of violence. Threats of violence or of physical harm, and any form of physical or sexual assault or threats of physical assault are prohibited. This includes conduct that harasses, disrupts, or interferes with another person's work performance or creates an intimidating, offensive or hostile work or educational environment.

The University has also adopted a Campus Safety Ordinance (WSU Statute 2.87.03) which applies to all property owned, leased or otherwise controlled by Wayne State University and applies to all individuals when present on such property, regardless of whether the individual has a

concealed weapons permit or is otherwise authorized by law to possess, discharge or use any device referenced in therein. The ordinance states that no person shall, while on any property owned, leased, or otherwise controlled by WSU:

1. possess or carry on his or her person any firearm, explosive or chemical weapon;
2. carry on his or her person any sword, switchblade knife, or other knife with a blade longer than three inches; and
3. carry on his or her person any other object or device with the intent of intimidating or injuring another person.

Upon conviction of any violation of this ordinance, the violator shall be sentenced to a fine not to exceed \$500.00. In addition, violations of this policy may result in disciplinary action under existing University administrative policies. Limited exceptions to this policy exist for University employees expressly authorized to possess or use such weapons, devices or substances, law enforcement officials so authorized, and any individual whose possession or use is in connection with a research or regularly scheduled educational program authorized by the University, for which the Chief of the Wayne State University Police Department has been given at least one week's advance notice.

University personnel are expected to notify appropriate management personnel of any violent or threatening behavior, when that behavior is work-related, carried out on University property, or is connected to University employment. Any individual who has obtained a personal protection order that identifies the workplace as a protected area should provide that information to the Wayne State University Police Department.

# Admission: Graduate School

OFFICE OF GRADUATE ADMISSIONS

5057 Woodward, Suite 6305

Detroit MI 48202

Telephone: 313-577-4723; Fax: 313-577-0131

<https://gradschool.wayne.edu/admissions> ([https://](https://gradschool.wayne.edu/admissions/)

[gradschool.wayne.edu/admissions/](https://gradschool.wayne.edu/admissions/))

## Admission: Graduate

To be considered for graduate admission, an applicant must hold or be completing an earned baccalaureate degree or its equivalent from a college or university of recognized standing and have adequate preparation with discernible ability to pursue graduate studies in the major field elected. These criteria are subject to standards set by the individual Colleges and Schools, which reserve the right to revise or amend their entrance requirements beyond the minimal requirements of the University. Note: Proof of the earned bachelor's degree must be submitted before regular admission will be granted.

Before any student can be considered for admission to graduate study, the following must be submitted to the Office of Graduate Admissions or an approved Centralized Application Service: a completed online application and an official transcript from any college or university at which a bachelor's degree was earned. A transcript is considered official only if it is sent directly from the institution where the course work was completed and bears an official seal. International applicants are expected to submit additional documentation for regular admission. Note: The applicant is also responsible for arranging to take any examinations that may be specified by the Office of Graduate Admissions, the College, or the Department in which the student intends matriculation.

Some academic programs may require an additional departmental application for admission. Students are advised to contact the department to which they are applying and request full particulars on admission procedures.

In most departments (see the departmental sections of this bulletin for variants), a regular admission may be authorized for the domestic master's degree applicant upon the department's recommendation, if the applicant's grade point average is 2.75 ('C'=2.00) or above for the upper division (approximately the last sixty semester credits) of his/ her undergraduate course work and if he/she holds a bachelor's degree from a regionally accredited institution.

All baccalaureate graduates of unaccredited institutions must present a 3.00 ('B') or better upper-division grade point average to be considered for graduate admission. Course work completed after the baccalaureate which is presented as the qualifying basis for graduate admission cannot be applied toward a graduate degree at Wayne State University.

Doctoral applicants must present higher entrance qualifications than those required of master's degree applicants. A doctoral applicant is required to have an undergraduate grade point average of 3.0 ('B'=3) or above for the upper division of the undergraduate, bachelor's degree course work and must have completed an undergraduate major or substantial specialized work in his/her proposed doctoral major field. Certain departments require the completion of a master's degree with superior scholarship before considering acceptance of a student as a doctoral applicant. Applicants with less than a 3.0 grade point average in undergraduate course work may be eligible for admission to doctoral study if they have subsequently achieved a grade point average of 3.0 or better in substantial graduate course work in the proposed doctoral field.

The individual colleges reserve the right to refuse a non-resident admission if such admission prevents registration of a qualified Michigan resident. This ruling may not be invoked to secure admission to a Michigan resident if his/her grade point average entitles him/her to qualified status only.

## Admission: Qualified Graduate

In most Departments, qualified admission to a master's or certificate program may be authorized if an applicant's grade point average is between 2.50 and 2.74 or if his/her degree is from a non-accredited institution, provided the major Department and the Graduate Officer of the appropriate School or College have reviewed the applicant's academic experience, extra-scholastic qualifications and reasons for pursuing graduate study and have recommended his/her admission to the Graduate School.

Upon recommendation of the Department and the Graduate Officer of the appropriate College or School, qualified status may be granted to an applicant whose grade point average is below 2.5, if, since the time his/her baccalaureate degree was conferred, he/she has shown substantial evidence of academic or extra-scholastic qualifications of such merit as to warrant special consideration.

Applications from students who have completed substantial course work at, and/or graduated from, institutions which were not accredited by one of the six regional U. S. accrediting institutions (MSCHE, NEASC, HLC, NWCCU, SACS, or WSCUC) at the time studies were undertaken, will have a special review. If requested, the applicant will be required to furnish documentation of the nature and level of the credit obtained, the bases on which the credit was awarded, institutional operating practices, library holdings, physical facilities, faculty qualifications, and any other matters that may be relevant to an evaluation of credit.

All graduate admission procedures and regulations are subject to revision by the University's Graduate Council, the President, or the President's Designee at any time.

## Graduate Application Dates

The Office of Graduate Admission will make every effort to process applications in time for the semester of the student's choice. However, only complete applications received by the last recommended dates shown below are ensured academic review before the semester starts. Unless an application and all supporting materials are received by the date indicated, there may not be adequate time for the desired program to review the application and make the admission decision.

**Fall Term** — Classes begin Late August: **apply by June 1**

**Winter Term** — Classes begin Early January: **apply by October 1**

**Spring Term** — Classes begin Early May: **apply by February 1**

**For international students**, the application form and all transcripts and documents must be on file in the Office of Graduate Admission at least four months prior to the start of the term in which the applicant plans to begin graduate studies.

**Several Colleges and Departments have earlier deadlines.** Doctoral programs also have earlier application deadlines. Students should consult the School/College and Department sections of this bulletin, the program's website, or the Office of Graduate Admissions for complete information.

## Change of Graduate Status

A Change of Graduate Status is a type of admission only for those students who have previously been admitted to and registered as regular

graduate students at WSU. For such students, a Change of Graduate Status is used to request:

1. to change from one graduate program or level to another graduate program or level; or
2. to add a second graduate program to the one in which the student is already enrolled.

A department's normal admission criteria apply to Change of Graduate Status applicants. The application form (<http://gradschool.wayne.edu/current/forms.php>) is downloadable from the Graduate School.

Students should submit the form and transcripts, if needed, to the Graduate Office of the School/College of the new program. Other admission documents required by the department should be submitted directly to the department. The School/College Graduate Office prepares and sends the application and documents to the department for decision. The Graduate Office notifies the student of the admission decision, and, if admission was approved, notifies the Records Office of the change to be made to the student's record. The department's regular admission deadlines apply. No fees are charged for a Change of Status application.

The Change of Graduate Status application should NOT be used by the following students: those who have never been admitted through the Office of Graduate Admissions, those who were admitted but did not register, those who were admitted on a Permit to Register or as Guest students, and those who have been registered in graduate classes only as Non-Matriculated students through the College of Liberal Arts and Sciences.

## Graduate Non-Degree Admission

An applicant who wishes to take graduate courses but does not wish to be in a degree program may request admission on a non-degree basis. The eligible applicant will be admitted to a particular College but not to an individual major program. In most instances, a non-degree student may, with the Department's approval, register for any courses for which he/she has the necessary preparation.

The applicant for a non-degree graduate classification is cautioned that *only one semester of full-time graduate study, or part-time registrations not to exceed nine credits, is normally permitted in this classification*. Beyond these limits, registration as a non-degree student requires the approval of the Graduate Officer of the student's College. Not more than nine credits, subject to the approval of the Graduate Officer, may be applied at a later date toward the residency and credit requirements for either the master's or Ph.D. degree. For the Ed.D. degree, credit earned beyond the nine-credit limitation will be reviewed by the appropriate Division and the Education Graduate Officer for possible application toward the degree.

If a student in non-degree status decides to seek admission to a graduate degree program, he/she should apply to the appropriate College Graduate Office for a Change of Status *before* completing nine credits. There is no assurance that credits earned while holding a non-degree classification will be acceptable in a degree program, or that prerequisites may not have to be specified if the student later becomes a degree applicant. Also, financial aid is not available to students in Non-Degree status.

## Graduate Guest Admission

Graduate students actively pursuing degrees and who are in good standing at other accredited colleges and universities may be admitted to elect a limited number of credits at Wayne State University. Interested students may obtain a Graduate Guest Application (<http://wayne.edu/admissions/graduate/applying/app-instructions/>) from the Office of Graduate Admissions. This must be signed by their home institution before it can be accepted for consideration. **A guest admission is valid**

**for only one semester and must be renewed with each subsequent registration.** A maximum of twelve semester credits may be earned as a Graduate Guest Student. Admission as a Graduate Guest student does not constitute permission to register as a degree applicant.

## Senior Rule

In their last undergraduate semester, Wayne State students with a 3.0 (or above) upper division grade point average have the option of taking a limited number of graduate credits. Graduate credit is awarded only for those courses taken in excess of baccalaureate degree requirements. Undergraduate and graduate courses combined may not exceed sixteen credits for the final semester of baccalaureate degree course work. A Senior Rule student must register for at least one credit which is required for the undergraduate degree in order to be eligible for this status. Students who have completed all required registrations for the baccalaureate may not obtain Senior Rule status. Completion of the *Application for Graduate Admission* is required, and students are advised to consult their advisors and the Office of Graduate Admissions. Application deadlines for Senior Rule admission are the same as for regular graduate admission. Students who qualify and are recommended by the Department or College will be admitted for one semester. Graduate admission will be regularized upon evidence that the student has completed all requirements for the bachelor's degree; it is the student's responsibility to provide this transcript.

As a courtesy, the University permits a student to pay undergraduate fees for the graduate courses elected in a Senior Rule status. It is recommended that students elect only courses numbered 5000-6999 in their Senior Rule semester. Senior Rule may not be used in conjunction with AGRADE.

## AGRADE: Accelerated Graduate Enrollment

Several Colleges have established an accelerated combined undergraduate and graduate program (AGRADE) in which highly qualified seniors in the college may enroll simultaneously in some undergraduate and graduate programs of the College. A maximum of sixteen credits may be applied towards both undergraduate and graduate degrees in a student's major field if that program is an AGRADE participant. Those who elect the AGRADE program may expect to complete the Bachelor's and Master's degrees in five years of full-time study. AGRADE may not be used in conjunction with Senior Rule.

**AGRADE Credits:** Students may elect a minimum of three and a maximum of sixteen AGRADE credits. These will be used to complete the baccalaureate degree as well as to serve as the beginning of graduate study. Upon formal admission to a master's program, AGRADE credits are transferred as if they were graduate credits transferred from a graduate program at another university. The remaining graduate credits required for the master's degree will be earned in the conventional manner following formal admission to the graduate program.

**Eligibility:** AGRADE applicants must have an outstanding overall g.p.a. and have performed at a superior level in their major, as determined by the major department. The earliest date by which a student may apply for the AGRADE program is during the semester in which he/she completes ninety credits toward the undergraduate degree.

**Application:** A student seeking AGRADE status should present to the Graduate Admissions Committee of his/her major department all of the materials which that department requires for normal admission (except the GRE; where required, the GRE scores should be forwarded at the normal point in the formal graduate admission process).



Admission and program requirements are described in the respective School and College sections of this bulletin, the Undergraduate Bulletin, and department advising offices.

## Permit to Register Status

This is a one-term-only admission status which may be granted to applicants with incomplete applications for graduate admission, at the discretion of the academic department, and upon presentation of evidence of an earned baccalaureate degree with an acceptable grade point average and the application fee. Registration beyond the initial semester requires the submission of a regular graduate admission application, official transcripts and other required documentation as determined by the university and department. Admission as a graduate Permit-to-Register student does not obligate Wayne State University to accept the applicant in the future for a graduate degree, nor is there any assurance that credit earned in this status will be accepted toward a graduate degree.

This option is not available in all University Schools and Colleges. Applicants are encouraged to discuss admission options with the staff of the Office of Graduate Admissions. In addition, financial aid is not available to students in Permit to Register status.

## Michigan Intercollegiate Graduate Studies (MIGS) Program

The Michigan Intercollegiate Graduate Studies (MIGS) Program enables graduate students of Michigan public institutions to take advantage of educational opportunities at other Michigan public institutions offering graduate degrees. Any graduate student in good standing in a master's, specialist, or doctoral program at a member institution is eligible to participate with approval of the appropriate academic unit. Students on a MIGS enrollment pay tuition and other fees at the host institution. All credits earned under a MIGS enrollment are accepted by a student's home institution as if offered by that institution. *This type of enrollment is limited to one term for master's or specialist degree students, or two terms for doctoral degree students.* Students interested in this program should contact the Office of Graduate Admissions (<https://wayne.edu/admissions/graduate/application-types/>) for further information.

## University of Windsor – WSU Exchange Program Agreement

Wayne State University and the University of Windsor have entered into an exchange agreement whereby students from each institution may enroll in selected courses at the other institution. Courses available are limited to those not offered at the student's home institution. Limitations also apply to the number of courses and credits a student may take under this agreement. Wayne State University and the University of Windsor students who wish to participate in the program must be in good standing at their home institution and must have prior approval of the appropriate academic unit that the course(s) will be accepted as part of the student's course of study. Students who participate in the Wayne State University/University of Windsor program pay tuition and fees at the home institution and receive credit for the course(s) only at the home institution. Students should consult the Director of the Office of Study Abroad for further information.

## Post-Bachelor Admission

The Post-Bachelor status is granted to college/university graduates who wish to take Wayne State University courses through the 6000 level for *undergraduate credit only*. The status serves two groups of students:

1. Those who wish to pursue vocational or avocational interests without intending to use Wayne State University credit to earn another degree at Wayne State University;
2. Those who seek admission to a graduate program but need to raise their undergraduate grade point average and/or fulfill specific undergraduate course requirements for graduate admission consideration.

The following special rules apply to Post-Bachelor Admission:

1. **Under no circumstances will credit earned in this status apply toward a graduate degree program.**
2. The applicant must present evidence of a degree earned from an accredited institution (official transcript or diploma).
3. Post-Bachelor status students are not eligible for financial aid from Wayne State University, except in certain circumstances depending on the program; students should consult the Office of Student Financial Aid (<http://www.finaid.wayne.edu>) for a list of eligible programs.
4. Applications for Post-Bachelor status from students new to Wayne State University should be made to the Office of Undergraduate Admissions, Welcome Center, 42 W. Warren, Wayne State University.
5. An applicant who earned an undergraduate degree from Wayne State University, or who was previously admitted and registered in a Wayne State graduate program, should contact the Records Office to be re-admitted to the University as a Post-Bachelor student. Post-Bachelor applicants in the Colleges of Education and Nursing must obtain authorization directly from the College.

## International Graduate Students

To be considered for graduate admission, international applicants must have completed an appropriate university-level program comparable in subject matter and credits to a program for which a bachelor's degree is awarded at Wayne State University.

The fact that a degree in another country may have a similar name to a degree offered in the United States does not mean the two degrees require similar lengths and content of study or that they should be accepted as equivalents. *All graduate applicants must:*

1. present an excellent scholastic record;
2. have sufficient financial resources for minimum tuition, supplies and living expenses; and
3. have a sufficient proficiency in English (see the section on English Proficiency Requirement — International Students, below).

**FINANCIAL AID:** University-sponsored financial assistance for international students is extremely limited and unconfirmed awards should not be included in financial projections.

## English Proficiency Requirements

Graduate applicants who graduated from colleges/universities in other countries must demonstrate proficiency in English. To fulfill this requirement an applicant must satisfy one of the following criteria:

1. Complete baccalaureate degree requirements at an accredited U.S. institution or in a country where English is the native language.
2. Present an acceptable score on the Michigan English Language Assessment Battery (MELAB).
3. Present an acceptable score on the Test of English as a Foreign Language (TOEFL) or equivalent tests such as the IELTS or PTE.

Some units may elect to grant qualified graduate admission to academically-talented International Students whose TOEFL scores fall slightly below the University minimum score. Interested students should

contact the chairperson or director of their prospective program, to determine whether the program offers such qualified admission. For further information on the English Proficiency policy, please consult the Office of Graduate Admissions.

## Faculty Admission

Tenured Wayne State University faculty members holding the rank of Assistant Professor or above may be admitted to Wayne State graduate degree programs outside the faculty member's school/college, under certain specified conditions. Untenured tenure-track faculty members are not eligible to pursue a graduate or professional degree at Wayne State while in University employment. Faculty members who are not tenured and not on the tenure track may enroll in degree programs outside their own unit with the approval of the dean of their college. For further information, contact the Dean of the Graduate School.

## Special Status Students

### Visiting Doctoral Guest

The Graduate School may issue a Visiting Doctoral Guest certificate to persons with an earned doctorate who come to Wayne State for scholarly study under the sponsorship of a department. Such Guests may obtain University library privileges and attend classes upon invitation of the department. No official record of attendance is kept on such Guests. For further information, contact the Graduate School.

### Visiting Scholar

The Graduate School may issue a Visiting Scholar certificate to persons who have an advanced degree, such as an M.D., or are earning a doctoral degree, and who have come to Wayne State for scholarly study under the sponsorship of a department. Scholars may obtain University library privileges and attend classes upon invitation of the department. No official record of attendance is kept on such Scholars. For further information, contact the Graduate School.

## Academic Regulations

### Graduate Status

Continuance in graduate status is contingent upon the student keeping informed of and abiding by all guidelines, rules, regulations and requirements and complying with all official procedures of the university, the Graduate School, the individual college or school, and the department or program. The student is responsible for fulfilling all course and degree requirements in proper sequence with satisfactory scholarship. In case of doubt regarding any matter affecting their standing as a graduate student, students should consult with their advisor. The primary responsibility of keeping informed of policy and procedures rests with the student. Regulations contained herein should not be construed as exhaustive.

### Graduate Courses

Graduate work is classified either as course work, in which students meet as an assembled group, or as research. Generally, courses numbered 5000 and above may be considered graduate level; in some departments, certain 5000 and 6000-level courses are not permitted for graduate credit and are so designated. Courses numbered 7000 and above are open only to graduate students.

### Graduate Course Numbering Systems

#### — For the College of Education

5000-6999 — Undergraduate or graduate credit.  
7000-8999 — Open to graduate students exclusively.  
9000-9999 — Open to doctoral students exclusively.

#### — For the Faculty of Pharmacy

6000-6999 — Undergraduate/Graduate Courses.  
7000-8999 — Graduate Courses.  
9000-9999 — Ph.D. Courses.

#### — For all other Schools and Colleges

5000-6999 — Junior- and senior-level courses; also may be taken for graduate credit by students admitted to a graduate program, except where expressly prohibited.  
7000-8999 — Open to graduate/professional students exclusively.  
9000-9999 — Open to doctoral students exclusively.

**Mike Ilitch School of Business:** All courses numbered 6000-6100 and 7000 or higher are open *only* to students formally admitted to a Wayne State graduate program, or to qualified guest students. Enrollment in these courses must be approved by a graduate advisor or be consistent with a student's Plan of Work. Students in an undergraduate, post-bachelor, or non-matriculated status are not eligible.

**Law School:** In addition to the above approvals, graduate students must obtain the written permission of the Law School Dean to elect Law School courses or directed studies.

### Directed Study

Independent study may be authorized provided the area of interest is an integral part of the student's graduate program and is not covered by courses scheduled while completing one's course requirements. Before Ph.D. students may register in directed study, they must complete the Ph.D. directed study petition form, *Doctor of Philosophy Petition and Authorization for Directed Study*, and obtain the written permission of his/her department's graduate director. The petition must contain information about the nature, scope, and significance of the course, and indicate the major requirements the student must fulfill. Master's students must

provide the same information and obtain the written permission of their college/school Graduate Officer.

## Definition of Credits

A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that reasonably approximates not less than:

1. one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work each week for approximately fifteen weeks for one semester hour of credit, or the equivalent amount of work over a different amount of time; or
2. at least an equivalent amount of work for other activities, including laboratory work, internships, practicums, studio work, and other academic work leading to the award of credit hours.

## Graduate Credits

### Major Credits

Credits earned in the student's major field are designated as major credits. The dissertation, thesis, or essay must be in the major field.

### Minor Credits

Credits earned in departments other than the major are classified as minor or cognate credits. Election of minor credit is encouraged to enable the student to broaden his/her program. In doctoral programs, minor courses should be related to the major and six or more graduate credits approved by the unit graduate director will constitute a minor.

## Program Load

### Normal Program Load

A full-time graduate student is one who is enrolled for eight or more credits during academic-year semesters; graduate students are considered full-time during the spring/summer term if they enroll for at least two credits. The definition of normal course load will vary depending upon the requirements of each program.

### Maximum Credit Load

A student with a strong academic record who is devoting full-time to graduate study may register for a maximum of *sixteen credits per semester*. Graduate Assistants are required to register for at least six credits each semester. The University considers a program of eight graduate credits per academic-year semester and two credits per spring/summer semester to be full-time study. Note that students are not required to enroll over spring/summer to continue their full-time status. For students who have advanced to Ph.D. candidacy, 7.5 credits is considered as full-time study.

## Dual Enrollment

### Graduate Election of an Undergraduate Course

Graduate students may register for undergraduate courses, however these courses will be recorded on the undergraduate transcript. All courses elected under this status will be assessed at the graduate rate. These courses cannot be used as graduate credit nor to meet requirements for any graduate degree.

### Undergraduate Election of a Graduate Course

Highly qualified undergraduate students may, under special circumstances, take a 7000-level course for undergraduate credit only (these credits may not be transferred in to a graduate program at a later date). A written petition initiated by the student's advisor must be approved by the graduate officer of the School or College, the professor

teaching the course, and the Dean of the Graduate School. The petition, with all required signatures, must be turned in at the time of registration.

## Accelerated Graduate Enrollment Program (AGRADE)

Several Colleges have established an accelerated combined undergraduate and graduate program (AGRADE) in which highly qualified seniors in the college may enroll simultaneously in some undergraduate and graduate programs of the College. A maximum of sixteen credits may be applied towards both undergraduate and graduate degrees in a student's major field if that program is an AGRADE participant. Those who elect the AGRADE program may expect to complete the Bachelor's and Master's degrees in five years of full-time study. AGRADE may not be used in conjunction with Senior Rule.

*AGRADE Credits:* Students may elect a minimum of three and a maximum of sixteen AGRADE credits. These will be used to complete the baccalaureate degree as well as to serve as the beginning of graduate study. Upon formal admission to a master's program, AGRADE credits are transferred as if they were graduate credits transferred from a graduate program at another university. The remaining graduate credits required for the master's degree will be earned in the conventional manner following formal admission to the graduate program.

*Eligibility:* AGRADE applicants must have an outstanding overall g.p.a. and have performed at a superior level in their major, as determined by the major department. The earliest date by which a student may apply for the AGRADE program is during the semester in which he/she completes ninety credits toward the undergraduate degree.

*Application:* A student seeking AGRADE status should present to the Graduate Admissions Committee of his/her major department all of the materials which that department requires for normal admission (except the GRE; where required, the GRE scores should be forwarded at the normal point in the formal graduate admission process).

Admission and program requirements are described in the respective School and College sections of this bulletin, the Undergraduate Bulletin, and department advising offices.

## Senior Rule Graduate School Admission

In their last undergraduate semester, Wayne State students with a 3.0 (or above) upper division grade point average have the option of taking a limited number of graduate credits. Graduate credit is awarded only for those courses taken in excess of baccalaureate degree requirements. Undergraduate and graduate courses combined may not exceed sixteen credits for the final semester of baccalaureate degree course work. A Senior Rule student must register for at least one credit which is required for the undergraduate degree in order to be eligible for this status. Students who have completed all required registrations for the baccalaureate may not obtain Senior Rule status. Completion of the *Application for Graduate Admission* is required, and students are advised to consult their advisors and the Office of Graduate Admissions. Application deadlines for Senior Rule admission are the same as for regular graduate admission. Students who qualify and are recommended by the Department or College will be admitted for one semester. Graduate admission will be regularized upon evidence that the student has completed all requirements for the bachelor's degree; it is the student's responsibility to provide this transcript.

As a courtesy, the University permits a student to pay undergraduate fees for the graduate courses elected in a Senior Rule status. It is recommended that students elect only courses numbered 5000-6999 in their Senior Rule semester. Senior Rule may not be used in conjunction with AGRADE.

## Dual Registration at the University of Michigan

A student enrolled at either Wayne State University or the University of Michigan may elect a course or courses in the other institution if the course fits his/her program but is not available in his/her home institution. The student must have written approval of the department chairperson in his/her major area at the home college and the approval of his/her Dean. The election must also be approved by the department which offers the course. Students desiring to participate in Wayne State University - University of Michigan dual registration should obtain the necessary forms from the Office of the Registrar and pay the appropriate tuition at their home institution.

## Enrollment in Online Programs

A select number of programs have received authorization from the university to be offered in a fully online format. All students who are eligible to enroll in a fully online major will be assessed regular Michigan resident tuition rates. Students enrolled in a fully online major are limited to registering for courses listed in the Schedule of Classes with the Instructional Methods: Online — No Scheduled Meetings or Online — Scheduled Meetings. The limits on course registration apply to both Michigan residents and non-residents.

International students residing outside of the United States can enroll in and complete online programs, and these students would qualify regular Michigan resident tuition rates. International students on F-1 or J-1 visas are ineligible for fully online programs

A list of the university's approved fully online programs is available in the annual Statement on Tuition and Fee Regulations (<https://wayne.edu/registrar/tuition/tuition-and-fee-regulations/>).

## Grade Point Average

The grade point average (g.p.a.) is the numerical index of the student's scholastic average across all transcript credit earned at a given student level (i.e. undergraduate or graduate). Points are assigned to each letter grade (see University Grading System, above) for each hour of credit. To compute your grade point average, multiply the grade points assigned to each course grade by the number of credits for each course; add the results and divide by the total number of credits.

For example, a grade of A in a class carrying 3 credits would be assigned 12 grade points (3 x 4), and a grade of C in a class carrying 4 credits would be assigned 8 grade points (4 x 2). In this example, the grade point average is: 20 (total grade points) divided by 7 (total credits attempted) = 2.85 g.p.a.

Credit for special examinations, transfer credit, and courses in which a mark of I or W or a grade of S, U, M, P, and N, has been earned are excluded from grade point average computation.

**Law School:** This grade point system does not apply to Law School students.

## Graduate Grading System

Final grades are available on Academica (<http://academica.wayne.edu/>). Grades are not mailed to students. Final grades are recorded under the following system.

The graduate grading system is intended to reflect higher standards of critical and creative scholarship than those applied at the undergraduate level. To receive a graduate grade in courses open to both undergraduate and graduate students, the graduate student is expected to do work of superior quality and is required to do any additional work specified by the instructor.

To be awarded a graduate degree, a student must have achieved at least a 'B' (3.0) overall grade point average. Grades of 'B-minus' and below are unsatisfactory for graduate level work. A limited number of 'B-minus', 'C-plus,' or 'C', though unsatisfactory, may be applied toward a graduate degree provided they are offset by a sufficient number of higher grades to maintain a grade point average of 3.0. Grades below 'B' can constitute reason for dismissal from a program at the department or program's discretion. Students should consult with their departments and advisors regarding unsatisfactory grades and their impact on good academic standing. All graduate teaching assistants and graduate research assistants must maintain a minimum grade point average of 3.0 in order to continue their assistantship appointments. Every effort is made to assist students whose work suffers as a result of a condition beyond their control, or interruption of study for military service.

**Law School and School of Medicine:** This grading system does not apply to Law School students in the J.D. program or students in the four-year M.D. program of the School of Medicine. Students enrolled in those programs should see the appropriate sections of this bulletin and should consult with appropriate Program Directors for more information.

**Final grades for graduate courses** are recorded under the following system.

A	Excellent	4.0 per credit hour
A -		3.67 per credit hour
B +		3.33 per credit hour
B	Good	3.0 per credit hour
B -	Below Graduate Standards	2.67 per credit hour
C +	Below Graduate Standards	2.33 per credit hour
C	Below Graduate Standards	2.0 per credit hour
F	Failure	0 per credit hour
M	Marginal Pass in designated courses such as field work, practicums and internships (not considered in calculation of grade point average)	



S and U	Satisfactory and Unsatisfactory performance in non-degree courses and in certain designated courses such as field work, practicums and internships. The grade of 'S' is given for all dissertation credits upon final acceptance of the dissertation in partial fulfillment of the requirements for the Ph.D. and Ed.D. degrees. 'S' and 'U' grades are not considered in the calculation of the grade point average but courses completed with an 'S' grade may count toward a degree
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**The mark of I (Incomplete)** is given to a student when he/she has not completed all of the course work as planned for the term and when there is, in the judgment of the instructor, a reasonable probability that the student will complete the course successfully without again attending regular class sessions. The student should be passing at the time the grade of I is given. A written contract specifying the work to be completed should be signed by the student and instructor. Responsibility for completing all course work rests with the student.

The mark of I will be changed to a letter grade when the student completes the course work as arranged with the instructor or, if the instructor has left the University, with the Chairperson of the department or other instructional unit. Work must be completed within one calendar year. There are NO extensions.

The mark of I will not be awarded if, in the instructor's judgment, it is necessary for the student to attend subsequent sessions of the class. If regular attendance is necessary to complete coursework, the student must register for the class for the semester in which attendance is planned. The student will be assessed tuition and applicable fees for the second registration. If the student decides to register for the course, subsequent to the assignment of an I, then the mark of I for the original election will be changed to a W (Withdrawal), and the student will be responsible for tuition and applicable fees for the second registration. Students are responsible for notifying their department and the department offering the course that they have reregistered for the course so that the I is not changed to an F.

Any unchanged mark of I will, within one calendar year from the time it was received, be changed to a grade of F or failure. This will not be changed after the I is replaced.

**The mark of W** is given when a student voluntarily withdraws from a class during the official withdrawal period for that class as denoted in the Schedule of Classes. The mark of W is not used in the calculation of grade point average.

**The mark of Y (Deferred)** is given when the student is up-to-date in the work of a course planned to continue beyond the semester (i.e., essay, thesis, dissertation and certain courses taken in sequence).

**The mark of Z (Auditor)** is given when the student has formally registered for the course for audit. The student's Academic Dean or his/ her

designee must provide written audit authorization to the student at the time of registration.

## Retaking Courses

**Graduate Students:** A graduate program may, if it wishes, allow a student to retake a graduate course in which the student earned a grade of 'B-minus' or lower. This prerogative is exercised by the program through the use of the override provisions in the University's registration system which will prevent students from independently retaking courses. The number of courses and the number times a course may be retaken is determined by the program. The original grade for the course will remain on the student's transcript, but only the final grade received in retaking of the course will be used in computation of the student's grade point average. Students will not receive University financial aid for courses that are retaken. It is the student's responsibility to be apprised of his/her program's repeat policy.

**Mike Ilitch School of Business:** No course in which a student has received a passing grade or mark may be retaken without the prior written approval of the Director of Student Services of the Mike Ilitch School of Business.

**College of Engineering:** No course may be retaken without the prior written approval of the respective department's Graduate Program Chairperson and the Associate Dean of Engineering for Graduate Studies. Students may not retake any course in which a grade of 'A' or 'B' was received.

## Auditing Courses

To audit a course, a student must indicate that they wish to audit the course rather than receive academic credit, at the time of registration. Registration to audit a course is subject to the following regulations:

1. Students must pay the tuition assessment for the course, which is the same as if it were taken for academic credit;
2. A student is not permitted to take quizzes and examinations in audited courses;
3. A student may not normally change from audit status after registering for the course. In some cases, exceptions may be permitted during the term with the written recommendation of the instructor and the written approval of the Dean of the college/school in which the student is enrolled. The instructor's recommendation and Dean's approval must be included with the student's Drop/Add Form indicating the desired change.

The Graduate School does not encourage students to audit graduate-level courses.

## Change of Grades and Marks

Once recorded in the Office of the Registrar, grades/marks will be changed only if the instructor posts the grade change in the online grade/mark change system in Academica. Most changes must be posted within one calendar year. (Deferred (Y) grades are the exception.) Failure grades that are posted as a result of a student not completing an incomplete course may not be changed. After a degree has been awarded, the grades associated with that degree may not be changed. Other change of grades or marks older than a year must be approved by the department chair and the Associate Dean of the school or college that offered the course.

## Credit by Examination

A student wishing to obtain credit toward an advanced degree for knowledge essential to his/her program of study, acquired by means precluding formal transfer to Wayne State University, may petition for an advanced credit examination in a course or courses covering the

relevant area of study. The petition requesting such advanced credit shall state the basis for the request in terms of the student's competence at the graduate level in the particular academic area. The established examination fee must be paid before the examination is taken. All grades will be recorded on the student's transcript. Such grades will not be used in computing the grade point average. The fulfillment of any requirement through credit by examination does not relieve the student of the residence requirement for degree.

## Transfer of Credits – Graduate

### Transfer Credits for the Master's degree

In work toward the master's degree, credit beyond the twenty-four credits which must be earned in residence may be transferred from accredited graduate schools, provided such credit is 'B' or better and certified as graduate-level credit on an official transcript; 'B-minus' and credit earned with 'S' and 'P' (satisfactory or pass) grades are not acceptable for transfer. Up to nine credits may be used from a non-degree program at WSU or another institution. Up to 8 graduate credits from a graduate degree program (at WSU or another institution) may transfer to a student's WSU master's degree. Those 8 in addition to a maximum of twenty-four earned in residency will be transferred toward the Ph.D. Departments and schools/colleges may further restrict the number of credits that may be transferred.

### Transfer Credits for the Ph.D. Degree

The Graduate School allows a maximum of 32 credits to be transferred to the Ph.D. These 32 credits may include up to eight master's degree transfer credits as noted above. Departments and schools/colleges may have additional requirements and restrictions. A student wishing to transfer graduate credit toward the Ph.D. degree must file a petition with the Graduate School via the Transfer of Credit form, approved by his/her advisor and departmental graduate director, requesting such transfers. The petition must be supported by a transcript showing a minimum grade of 'B' for the courses to be transferred; 'B-minus' grades are not acceptable for transfer. Ungraded courses, evaluated as "pass" or equivalent, may be transferred if approved and assigned 'S' credit by departmental graduate director. When students would like to transfer credits from institutions without course codes, the closest WSU equivalents must be listed. When students would like to transfer credits from institutions without letter grades, a conversion chart must be provided and used. Transfer credits must be appropriate to the student's degree program. Doctoral dissertation credits will not be transferred. Courses accepted for transfer credit from outside or within Wayne State University cannot have provided credit toward a prior degree except when the master's or another pre-doctoral certificate or degree is applied to the doctoral degree. Admission to Wayne State University based upon a previously earned master's degree does not guarantee that those credits are applicable to a graduate degree at Wayne State University.

Up to thirty-two semester credits of 'B' or better graduate credit earned prior to the student's admission as a doctoral applicant may be applied toward the Ph.D., whether the graduate credit was earned at Wayne State University or another institution, degree without regard to lapse of time. Credit earned with 'B' minus or 'S' or 'P' (satisfactory or pass) grades are not acceptable for transfer.

### Extension Credits

Extension credits earned at other than Michigan institutions cannot be applied toward a graduate degree or an education specialist certificate.

## Short-Term and Travel-Study Courses for Graduate Credit

Short-Term, Workshop-Institute-Conference, and Travel-Study courses offered for graduate credit must be proposed, approved and authorized well in advance via the appropriate form (obtainable from the Graduate School). After an initial authorization, courses to be repeated with no substantial change may be petitioned and approved by memorandum on the basis of the original on file.

**Short-Term Courses:** These are created or adapted to meet for a time period of less than one-half an academic semester— i.e., less than 7-1/2 weeks. Such courses offered for graduate credit will provide for at least fifteen contact hours and the requisite proportion of outside preparation for *each* hour of credit. It is assumed that short-term courses will not differ from regular fifteen-week courses in terms of objectives, content, contact hours, or academic expectations, unless such a difference is reflected by a proportioning of graduate credits.

**Workshop-Institute-Conference Courses (WIC):** WIC courses are those specially formulated experiences which, because of their usually 'applied' nature, lend themselves to an exceptionally brief but intensive time span. They differ from short-term courses in their concentration, usually spanning from a single day to two or three weekends. Offered for graduate credit, these courses provide for a minimum of twenty-five contact hours and an appropriate proportion of additional work for *each* hour of credit. Since these experiences vary greatly in their purposes and the degree of participation expected of the student, they are offered for credit only infrequently and enroll only those students for whose academic programs they would be directly relevant. Graduate grading will be on an 'S' and 'U' basis only.

**Travel-Study Courses** are courses created or adapted to take special advantage of the opportunity to relate a particular course of study to the cultures, mores, or institutions studied. Such courses may involve either domestic or foreign travel. All are offered through the Educational Outreach Division. Graduate credit for travel-study courses will be graded on an 'S' and 'U' basis only.

**CREDIT RESTRICTIONS:** Graduate students may not register for any course or combination of courses in these categories that permit the accumulation of graduate credits at a rate greater than one credit hour per week. Registrations that exceed this rate will be canceled in advance if discovered and, in no case will the excess credit be counted toward the requirements for a Wayne State graduate degree.

## Attendance Policy

Whenever attendance forms a basis for a portion or all of a course grade, students must be provided with explicit written information concerning that fact during the first week of classes. Such information shall be specific with regard to the penalty incurred for each absence and the means, if any, to compensate for the absence. It should be recognized that there may be certain situations where the student may not be permitted to make up the absence(s). This policy shall be applicable to all courses within the University, regardless of setting.

### Responsible Attendance and Performance

Students must show diligence and are normally expected to complete the courses they elect. Irresponsible attendance is wasteful of both student and University resources. Those students who consistently receive excessive marks of I (Incomplete) or W (Withdrawal) may be refused the privilege of further registration by the dean or the dean's designee of their school or college.

## Religious Holidays

Because of the extraordinary variety of religious affiliations of the University student body and staff, the Academic Calendar makes no provisions for religious holidays. However, it is University policy to respect the faith and religious obligations of the individual. Students with classes or examinations that conflict with their religious observances are expected to notify their instructors well in advance so that mutually agreeable alternatives may be worked out.

## Appeal Procedures

In matters where a College's signed final decision is based upon the evaluation of a student's academic performance, and when review procedures available to him/her within the College have been exhausted, the student may request the Associate Provost for Academic Programs to review that decision on the record. The academic appeal form (<https://provost.wayne.edu/academic-policy/>) must be submitted by the student himself/herself, **within thirty calendar days** of the postmark of the College's final decision, which is to be sent to the address provided by the student in the College's review procedures. The Associate Provost's review of the College's decision will proceed as soon as practicable after submission by the student of his/her wish to seek review.

### Grade Appeal Procedure

Students should first seek to settle grade disputes informally with the instructor. The dean's office of each school/college has established formal grade appeal procedures. Links to these procedures are also available on the Office of the Provost website. In most instances, formal grade appeals must be filed within thirty (30) calendar days of the time the student has or should have received their final grade. Note that the college of record for Ph.D. students is the Graduate School. For all other students, the college of record is the college or school in which the degree program is housed.

### Academic Appeal Procedure

Ph.D. program dismissals should begin in the program or department and should be made on the basis of evidence, existing policy, and must follow due process procedures. Graduate directors must communicate with students in writing about the dismissal including a description of the evidence used to justify the dismissal. Students begin the appeal process in writing, following their unit's grade appeal procedures. If the student is dissatisfied with the outcome of the response, the student may then appeal in writing to the Dean of the Graduate School within thirty (30) calendar days of receiving the program's decision. A decision by the Dean of the Graduate School is final and ends the appeal process.

### Academic Misbehavior Appeal Procedure

Where the Ph.D. program dismissal is based upon academic misbehavior as defined in Section 2.1 of the Student Code of Conduct, as opposed to poor academic performance, the procedures outlined in the Student Code of Conduct under Section 10.1 (a) and (b) must be followed. Students begin the appeal process for academic misbehavior in writing as defined in Section 10.1 (a), within ten (10) school days of oral or written notice of action taken by a faculty member under 10.1(a).

In addition to any action taken under Section 10.1(a), if a charge is also filed for academic misbehavior under Section 10.1(b), the procedures set forth in section 13.0 of the Student Code of Conduct are followed.

The student may initiate an appeal under Section 18.1 of the Student Code of Conduct within twenty (20) school days of the school or college's final decision. The appeal is before the Provost, who is the President's designee for all purposes under the Student Code of Conduct. A decision by the Provost is a final decision and ends the appeal process.

## Disputes Regarding Graduate Student Contractual Employment

Disputes concerning contractual employment including GTA/GSA assignments should be resolved in accordance with the Graduate Employees Organizing Committee (GEOC) contract in effect. Note that for non-Ph.D. students, academic appeals move from the department/program to the college or school in which the degree program is housed.

## Student Ethics

**Academic Records:** The submission of fraudulent academic records for admission or transfer of credit by a student may be cause for the student's dismissal.

**Academic Work:** Academic work submitted by a student for credit is assumed to be of his/her own creation, and if found not to be, will constitute cause for the student's dismissal.

## Student Code of Conduct

High standards of student conduct play a major role in creating an environment of excellence and the Student Code of Conduct is used to maintain these standards. The code:

1. establishes the expectations that students are accountable for their behavior;
2. describes acceptable student conduct, both academic and non-academic;
3. describes disciplinary policies and procedures;
4. specifies the rights of students and other parties; and
5. specifies prohibited conduct and sanctions to be imposed if such conduct occurs

Examples of prohibited conduct subject to the Student Code of Conduct include, but are not limited to, academic misbehavior, knowingly furnishing false information to the University, disorderly behavior, theft, damage of property, illegal drugs, weapons on campus, physical assault, unauthorized entry, violation of criminal law, etc.

**The University Student Conduct Officer**, housed in the Dean of Students Office, monitors the student disciplinary process and is responsible for coordinating matters involving student discipline; describing the disciplinary procedures; and informing students and other parties of their rights. The Student Code of Conduct (<https://doso.wayne.edu/conduct/>) is published by the Dean of Students Office.

## Obligations to the Instructional Process

Education is a cooperative effort between teacher and student, and both parties must fulfill obligations if the integrity and efficacy of the instructional process are to be preserved. In some cases, however, students are unable to meet goals, and programs must make difficult decisions about whether the student should continue in the program. These guidelines are designed to help programs define satisfactory academic progress and respond when students are not advancing appropriately.

### Program responsibilities

- Definition of what constitutes academic progress and lack of progress: the expected timeframe for achieving degree milestones, enrollment expectations and the number of stopped-out terms that will lead to probation and dismissal, and the acceptable number of unchanged Y grades
- Statement of any requirement for a minimum 3.0 grade in specific courses or restrictions on the number of grades below 3.0 that will be

accepted, as well as a statement of how many graduate courses may be repeated

- Statement of research and scholarship, professional and other criteria students must meet to remain in good standing in the program

## Faculty responsibilities

1. To contribute to and remain abreast of the latest developments in their fields;
2. To continually pursue teaching excellence;
3. To treat all students with respect and fairness without regard to ancestry, race, color, religion, political belief, national origin, gender, sexual orientation, age, marital status, disability, or veteran status;
4. To encourage differing viewpoints and demonstrate integrity in evaluating their merit;
5. To attend regularly and punctually, adhere to the scheduled class and final examination times, and arrange for notification of absence and coverage of classes;
6. To establish and maintain appropriate office hours;
7. To present, early in the semester, the following course information:
  - a. course objectives and general outline;
  - b. classroom procedures to be followed, expectations concerning class attendance, and proposed dates of major evaluations (including examinations, papers, and other projects);
  - c. grading policy;
  - d. where appropriate, a schedule of class-related activities, including class meetings and laboratory sessions;
  - e. lists of texts and/or other materials needed for the course;
  - f. late enrollment, withdrawal, and other special policies.
8. To provide and adhere, within reasonable limits, to the written syllabus of the course;
9. To know course matter thoroughly and prepare and present the material conscientiously;
10. To be informed of University services and recommend their use to students when advisable;
11. To follow these policies concerning written work and grades:
  - a. grade and return written work promptly;
  - b. submit final grades by the scheduled time;
  - c. retain written materials not returned within the semester (e.g., final examinations, major term papers) for one academic semester in accordance with unit policy and allow students to examine such materials;
12. To implement unit procedures for student evaluation of faculty teaching, with attention to preserving student anonymity;
13. To behave appropriately in dealing with students so as to maintain a scholarly atmosphere.

## Student responsibilities

1. To inform themselves of and to fulfill all requirements of the University and those of the College and Department from which they expect to receive their degree;
2. To fulfill conscientiously all assignments and requirements of their courses;
3. To attend classes regularly and punctually;
4. To maintain a scholarly, courteous demeanor in class;
5. To uphold academic honesty in all activities;
6. Meeting degree milestones (e.g. candidacy, prospectus approval) in a timely manner so that completion within the degree time limit appears likely
7. For Ph.D. students, passing the Qualifying Exam within two attempts

8. Maintain at least a 3.0 grade point average
9. To notify the instructor as early as possible if prevented from keeping an appointment or carrying out an assignment;
10. To discuss with the instructor any class-related problem and follow established procedures in the resolution of these problems;
11. To adhere to the instructor's and general University policies on attendance, withdrawal, or other special procedures.

It is expected that faculty and students will fulfill their obligations to the instructional process. If, however, a complaint does arise, the parties should meet in an effort to resolve the matter. When such a discussion fails to resolve the problem or is inappropriate given the circumstances, the head of the academic unit should be contacted. If this contact fails to satisfy the complaint, the College's published procedures should be followed. Although the University Ombudsperson is not a direct part of the appeal process, students and faculty may consult the Ombudsperson at any point during such proceedings.

In cases of lack of academic progress, programs may place a student on probation for a specified time, during which time the student works to achieve the goals set for the probationary period.

- **Enrolled students:** Programs should notify (in writing) students who are not making adequate progress of the specific issues involved and set up a timetable for the student to achieve them. This period is considered probationary, and a copy of the notification letter is to be placed in the student's program file and the college file (master's students) or Graduate School file (Ph.D. students).
- **Stopped-out students:** The program should contact students who stop enrolling to determine the student's intent to continue in the program. The program determines the number of allowable stop-out terms and the number that constitutes grounds for dismissal from the program.
- **GPA:** Students with GPAs below 3.0 are placed on probation systemically and automatically have a hold placed on their registration. Such students are required to confer with their advisor to develop a plan and timetable for elevating their GPA. If the advisor approves the plan, they should notify the school/college to release the GPA registration hold so the student can register for the agreed upon course(s).

If the student meets the expectations of the probationary period, the program should notify the college (master's students) or Graduate School (Ph.D. students) that the student who was on probation has returned to good standing. If the student does not meet expectations, the program should notify the student of their dismissal in writing and send the college (master's students) or Graduate School (Ph.D. students) a copy of the dismissal letter. These offices will place a hold on the student's future registration.

The student may appeal the dismissal. Such appeal will follow the grade appeals procedures, as outlined in the Graduate Bulletin, ending in review by the provost.

If the program readmits a dismissed student, the program should send a copy of the readmission letter to the college (master's students) or Graduate School (Ph.D. students) so the registration hold can be removed by these offices.

If a student withdraws from the program, the program should acknowledge the withdrawal in writing and put the student's withdrawal letter and the program's response letter in the student's program file. It should send copies to the college (master's students) or the Graduate School (Ph.D. students). These offices will place a hold on the student's future registration.



# Guidelines for Assigning Graduate Students to Teach Graduate Courses

Wayne State University strives, as part of its mission, to achieve academic excellence in all graduate programs and to provide opportunities for graduate students to teach. When selecting instructors for courses, three key issues should be considered:

1. Competence and credentials of the instructor
2. Maintaining confidentiality of the student
3. Avoidance of potential conflict-of-interest situations.

When graduate students are employed in any teaching capacity (e.g., graduate assistants, part, fractional or full-time instructors or lecturers, etc.), certain rules and guidelines are needed.

## General guideline

Students enrolled in graduate programs at Wayne State University should not ordinarily be given sole or major responsibility in the instruction and final grade evaluation of any course in which other graduate students are registered for credit. These guidelines are not intended to apply to the legitimate assignment of qualified graduate students as laboratory assistants or aids in courses that are taught by a graduate faculty member. In such cases, the responsibility for instruction, supervision and grading rests with the graduate faculty member.

## Exceptions

If, under extenuating circumstances, a graduate student enrolled at WSU must be assigned teaching duties that place that student in a teaching role with regard to other graduate students, the following restrictions will typically apply:

1. Only doctoral students who have attained candidacy may be assigned to teach graduate courses and only provided that no doctoral candidates are enrolled in the course for credit.
2. A graduate student may NOT be assigned for more than two semesters to teach graduate level courses in which other graduate students are registered.
3. A graduate student may be assigned to teach graduate-level courses in which other graduate students are registered only in a specific area of special competence. Graduate students who teach must otherwise fulfill all of the credentialing, licensing, degree and experiential requirements of faculty assigned to similar courses.

## Approvals

All exceptions to the general guideline shall be petitioned by the department, approved by the college dean and authorized by the dean of the Graduate School.

## Academic Nepotism

Faculty members are not to place themselves, or allow themselves to be placed, in situations amounting to 'academic nepotism,' i.e., teaching or otherwise directing the credit study or research of a student who is also a close relative. Concomitantly, students are not to take courses from close relatives or engage in research for academic credit under the direction of close relatives. All such credit will be disallowed.

## Fraud and Misuse of Documents

Intentionally furnishing false information to the University is explicitly prohibited, as is forgery, alteration, unauthorized possession, or misuse of University documents, records and identification cards. The University reserves the right to rescind degrees if the award of the degree was

based in whole or in part on deception, fraud, other unacceptable academic conduct, or misuse of University documents.

## Data Access, Retention, and Ownership Guidelines

These guidelines provide graduate students, postdoctoral trainees, faculty, staff, and research volunteers information about their rights and responsibilities and the ethical and legal framework applicable to research data produced by students and employees at Wayne State University. These guidelines are of particular importance for collaborative work involving multiple stakeholders or investigators. **Download guidelines as PDF**

## Definitions

**Research Data** are the aggregated, recorded, retrievable information created or obtained through research, scholarly or creative work. Data include but are not limited to research and/or laboratory records created or maintained in the course of a research project (including paper or electronic files, interview notes, survey results, etc.), whether prepared on campus, off campus or at a research site pertaining to a research project.

**Principal Investigator** is a University employee or other researcher with primary responsibility for the conduct and administration of a research project.

**Employee** is any individual who receives salary, fellowship or other forms of remuneration for work produced or supervised at the University.

**Students** are individuals who are enrolled in courses at the University or are enrolled in a program of study, including individuals who have ABD status but are not registered for classes, during the period in which the research data covered under this policy is created, recorded, developed or manipulated.

**Volunteers** are individuals working without pay on research projects guided or directed by University staff or employees. Volunteers may be, but do not have to be, students.

**Stakeholders** include the Principal Investigator, Employees (including faculty and staff and administrators), Students, and Volunteers who participate on the research team or work on any aspect of the research project that produces the Research Data.

## Guidelines

### University Responsibilities

- Research Data ownership and/or access rights may be addressed by agreements between research sponsors and the University. In particular, researchers engaged in scholarly work that is carried out under external grants and/or contracts are required to follow the policies and guidance of the funding agency and the University and any relevant contract provisions.
- In the absence of such contractual requirements or specific policies mandated by the research sponsor, Wayne State University asserts ownership of, and the right of access to, Research Data arising from all research conducted on the premises of or under the auspices of the University or supported by University resources. When necessary to assure appropriate access, the University may take physical custody of Research Data in a manner specified by the Vice President for Research or his/her designee.

### Principal Investigator Responsibilities

- The Principal Investigator is the steward of Research Data and is responsible for its collection, management and retention, and has authority to make decisions regarding its dissemination. The

Principal Investigator is also responsible for the maintenance and retention of research records and for compliance with any requirements of a research sponsor or funding agency related to Research Data. Appropriate record-keeping includes assurance of sufficient detail to allow replication of the research, response to questions about unintentional error or misinterpretation, establishment of the Research Data's authenticity and confirmation of validity. The Principal Investigator must communicate in writing to all Stakeholders at the outset of a research project (and at appropriate intervals during the ongoing research) these guidelines and the applicable system of Research Data organization and retention selected by the Principal Investigator and any determinations as to the method and timing of dissemination of the Research Data.

### Access by Stakeholders

- All Stakeholders participating in a research project have the right to access Research Data from the project and are responsible for complying with all requirements of a research sponsor or funding agency related to the Research Data and with applicable procedures for Research Data management, protection, security and dissemination communicated by the Principal Investigator. Access to data does not necessarily grant a right to disseminate or disclose data.

### Research Data Retention

- Research Data must be preserved for a reasonable length of time, as determined by the Principal Investigator, to allow an answer to questions from the scientific community regarding the research. Based on various sponsoring agency requirements and statutes of limitation, Research Data must be retained for a minimum of six years after the conclusion of a research project: an agreement with a research sponsor may require a longer retention period.
- If a Principal Investigator leaves the University, the Principal Investigator must make arrangements prior to leaving with his/her department chair or dean regarding the disposition of Research Data. In those cases in which data is appropriately transferred to the Principal Investigator's new institution, the University reserves the right to access the data for at least five years, unless there is an agreement between the two institutions providing otherwise.
- When a Stakeholder other than the Principal Investigator leaves the University, Research Data must remain at the University unless specific written agreements are made between the Stakeholder, the Principal Investigator, and the department chair or dean. Federal regulations including those related to HIPAA prohibit the transfer of personally identifiable health or other information without the appropriate authorization from the Human Investigation Committee, which serves as the University's Privacy Board.
- In the event the research project results in intellectual property rights such as patents, strict documentation of Research Data—including, as applicable, original Research Data such as signed and dated original laboratory notebook pages—must be retained indefinitely for so long as the University may need such documentation to address protection and ownership issues. Stakeholders (including students and trainees) may retain copies of research notebooks only if that arrangement is consistent with any contractual agreements and arrangements with the funding agency, HIPAA restrictions, and determinations of the Principal Investigator and unit administrators such as the department chair and School or College dean. Stakeholders must meet with the Principal Investigator to discuss Research Data access and retention arrangements upon leaving the University and before pursuing any significant research and development activity in respect of the Research Data after leaving the University.

### Creative Work

- Creative work (including but not limited to musical arrangements/recordings, pieces of art, novels, etc.) resulting from collaborations between students and faculty can raise issues similar to Research Data retention and dissemination in some disciplines. It is recommended that faculty address ownership and rights of usage in advance of pursuing such collaborations, including development of written agreements outlining the intended nature of the collaboration and the roles of faculty and student Stakeholders, to ensure credit is not disputed at a later date.

### Authorship and Disputes regarding Research Data Access

- Scholarly work is typically intended for publication. Various journals and organizations associated with scholarly publication abide by authorship guidelines, such as the International Committee on Medical Journal Editors guidelines (<http://icmje.org/recommendations/>) and the Committee on Publication Ethics (COPE) (<https://publicationethics.org/>) that provide for broad feedback on publication and authorship issues. Each individual who has made an intellectual contribution to a body of work has a reasonable expectation to be listed as a co-author on papers, publications and other disseminations of the work.
- At the time that any dissemination project involving Research Data is initiated, Stakeholders must discuss co-authorship status among those who contributed to the work and reach a consensus regarding those who will be listed as co-authors. All co-authors must be provided the opportunity to provide input on the content and publication timelines for the work and be notified prior to submission of the work. It is the responsibility of the advisor/Principal Investigator for a project to ensure that these discussions happen in a reasonable timeframe so as not to hinder the dissemination of the work (including timely graduation for students) and that equitable decisions are made regarding publication/dissemination.
- If a graduate thesis is one of the potential forms of publication and agreement cannot be achieved among Stakeholders, the publication issue may be appealed first to the relevant dissertation committee for resolution and, if the parties remain at odds, to the graduate officer and department chair. If the matter cannot be handled within the department, the final arbiter of such disputes is the Dean of the Graduate School.
- If other situations arise in which the Stakeholders involved in the generation, analysis, and/or reporting of Research Data cannot agree on the proper action, such disputes may be appealed to the department chair and, if the dispute remains unresolved, to the dean of the college or school. Either the dean or the Stakeholders may request that the Vice President for Research assist with a recommendation. The Dean's decision is final.

### Theses

- Doctoral and Masters theses are important publications associated with the scholarly work of the University's students. Research Data that is included in these publications are expected to be predominantly the result of work by the primary author. A thesis may use Research Data from other Stakeholders in a research project only if the Principal Investigator or research supervisor provides a signed statement explicitly acknowledging the use as appropriate and setting forth any applicable limitations on use of the other Stakeholders' Research Data as necessary to protect those Stakeholders' interest in the research project.

# Graduate Degree and Certificate Requirements

## Application for Degree or Certificate

Each candidate for a degree or certificate must file an Application for Degree (<https://wayne.edu/registrar/graduation/>), no later than the Friday of the fourth week of classes for the semester in which the student expects to complete the requirements for the degree or certificate. If an application for a degree was filed for a previous graduation term in which the student did not graduate, a new application is required.

## Master's Degrees

In addition to the following regulations, requirements may be specified by the individual graduate departments.

The minimum Graduate School requirement for the master's degree is thirty credits, at least twenty-four of which must be taken at the University. In those master's degree programs where the college, school or department requires more than the Graduate School minimum, their requirements take precedence. The Graduate School recognizes three general master's degree plans, though not all plans are offered in each department (for exact information, see listings under individual departments in the appropriate sections of this bulletin):

**PLAN A** requires a total of thirty credits, including a total of eight credits for a thesis (some departments require less).

**PLAN B** requires a total of thirty credits, including a minimum of two credits for an essay.

**PLAN C** requires a total of thirty credits. The essay or thesis is not required.

## Candidacy for Master's Degree

*Admission as an applicant does not assure acceptance as a candidate for a degree.* Candidacy is a necessary but not sufficient requirement for graduation.

Generally, students enrolled in master's degree programs are expected to file a Plan of Work by the time eight to twelve graduate credits have been earned. The applicant shall be advanced to the rank of 'Candidate' upon approval of the Plan of Work by the College Graduate Office. In most colleges candidacy must be authorized by the time twelve graduate credits have been earned or subsequent registration will be denied. In preparing the Plan, the student and advisor should evaluate with care the personal and professional objectives of the student as well as all degree and departmental requirements.

## Master's Essay

Under Plan B, students are required to complete an essay prior to the granting of a master's degree. The essay must show evidence of scholarly study and writing and be related to the student's major. Students should consult their departments regarding any additional requirements for essays, as well as for correct essay manuscript style.

## Master's Thesis

Under Plan A, departments require the completion of a thesis prior to the granting of a master's degree. The thesis may be of a research, expository or critical nature and should be selected and planned with care. It must be an original work, in or related to the student's major field of specialization. Work submitted for credit in other courses cannot be used in fulfilling thesis requirements. Neither the results of the research nor the publication of findings may be restricted by any non-University

agency. The results of the research may be published prior to submission and acceptance of the thesis, with the approval of the thesis advisor.

The presentation of a thesis generally brings to a close the pursuit of the master's degree. In essence such manuscripts represent a tangible summation of the many hours spent in study and research to acquire a higher education. For this reason such scholarly documents must evidence only the highest standards of research and writing. They must show consistency in punctuation, style and format. The Graduate School oversees the format requirements and templates (<http://www.gradschool.wayne.edu/>).

Advisors have primary responsibility for approval of the thesis. Such approval includes all academic and professional evaluations and judgments as to originality, adequacy, accuracy, significance, methodology, justification or conclusions and correctness of style. Approval shall not be recorded until the work and manuscripts are fully verified and accepted.

## Additional Essay or Thesis Elections and Fee Policy

A master's student who has enrolled for all elections (including essay or thesis) stipulated by his/her Plan of Work, and who has completed all the requirements of these elections, but has not completed the essay or thesis, will be required to register for at least one credit (the appropriate amount to be determined by the department) of essay or thesis direction until such time as the student:

1. completes the requirements for the degree;
2. declares himself no longer a candidate for the degree; or
3. exceeds the time limit allotted for securing the degree.

For these credits, the student will pay customary fees and will register as an auditor. No degree credit will be granted for these elections which are beyond the required credits for an essay or thesis. A mark of 'Z' (Auditor) will be recorded on the student's record for additional elections.

College of Nursing: The additional elections and fee policy also applies to field studies and research practicums.

## Time Limitation for Master's Degree

Students have a six-year time limit to complete all requirements for the master's degree. The six-year period begins with the end of the semester during which the student has taken work which applies toward meeting the requirements of the degree. The individual college or school reserves the right of revalidation of over-age credits which are between six and ten years old and which represent courses completed at Wayne State University. Such authority rests with the Graduate Officer of the college or school. Students are not permitted to revalidate credits earned at other institutions. In revalidation cases the advisor and the student must set a terminal date for completion of all degree requirements, including such additional requirements as may be prescribed to revalidate the over-age credits. Time extensions beyond these conditions are authorized only for conditions clearly beyond the student's control.

A student registered in a non-degree graduate classification is cautioned that only one semester of full-time graduate study, or part-time registration not to exceed nine credits, is permitted in this classification. Not more than nine credits may be applied toward the credit requirements for the master's degree.

Please see the appropriate school and college sections of this bulletin for specific master's program information.

# Doctor of Philosophy Degrees (Ph.D.)

*In addition to the following regulations, additional requirements for doctoral degrees may be specified by the individual graduate departments.*

Requirements for the degree of Doctor of Philosophy emphasize an overall understanding of and high competence in a field of knowledge, familiarity with cognate disciplines, facility in the use of research techniques, and responsibility for the advancement of knowledge. The meeting of the requirements for the doctorate is tested primarily by examinations and the presentation of the dissertation rather than by a summation of courses, grades and credits.

## Admission: Ph.D. Program

Students may be admitted to the status of Ph.D. applicant if they meet all Graduate School requirements for admission, presents a grade point average of 3.0 ('B'=3) for the upper division of the undergraduate course work and are accepted for study toward the degree by their school or college and major department. Additional requirements (e.g., letters of recommendation, undergraduate research experience, personal interview, specific coursework, service learning) are specified by departments and programs. Students presenting less than a 3.0 undergraduate grade point average are required to complete a master's degree program, or its equivalent, prior to consideration for admission to a Ph.D. program.

## Responsible Conduct of Research Training

All PhD students are required to take the graduate school course GS 0900 *Responsible Conduct of Research* (RCR) during the first year of their program. GS 0900 is a zero credit pass-fail course offered in both the fall and winter terms. This is an institution-wide comprehensive training program conducted by the Graduate School that provides basic training in the ethical conduct of research. In addition to the GS 0900 course, students should receive additional discipline-specific RCR training from their home department or program. Documented completion of RCR training is required for many external and internal individual fellowship applications. More information (<https://gradschool.wayne.edu/students/phd/requirements/#rcr>) on this course can be found on the Graduate School's website.

## Initial Ph.D. Advising

An advisor is assigned to the student at the beginning of his/her program and represents the Department in helping plan the student's program. The advisor provides academic guidance, approves required documents and monitors student progress. The initial advisor serves until the time the student identifies a dissertation director, who then assumes advising responsibilities.

## Graduate Faculty and Ph.D. Student Responsibilities

Course work and research leading to the doctoral degree is a matter of shared responsibilities between faculty members and Ph.D. students. The Graduate Council has established the following reciprocal obligations:

### Ph.D. program faculty are responsible for:

1. Admitting qualified students whose research interests can be accommodated within those of the program.
2. Ensuring that students receive competent and sustained advising from their entry into the program until degree requirements are completed or the student is separated from the program.
3. Monitoring and evaluating student progress toward the degree and for communicating the results of the evaluation to the student on an annual basis.
4. Assisting students in locating potential dissertation directors.
5. Offering guidance and instruction in those research areas in which they have expertise. To this end individual faculty members are responsible for deciding whether or not to serve as a dissertation

director for any given student. This responsibility rests solely with the faculty, who are expected to make decisions based on reasonable academic criteria.

### Ph.D. program students are responsible for:

1. Identifying research areas in which the Ph.D. program can provide guidance. The selection of a research area outside these areas may cause difficulty in achieving the degree.
2. Maintaining good standing throughout the doctoral program and making normal progress toward the degree.
3. Requesting that an individual member of the faculty serve as the dissertation director, working with the dissertation director toward timely completion of degree requirements, and complying with the dissertation director's instructions.

## Ph.D. Procedural Calendar

The stages of the Ph.D. degree are outlined below. The section following describes these stages in detail. Necessary forms and additional instructions and requirements may be found on the Graduate School website (<http://wayne.edu/gradschool/phd/>).

1. **Plan of Work:** Initiated by the student and completed with his/her advisor to plan the sequence of study. An approved Plan is a requirement for Ph.D. Candidacy.
2. **Ph.D. Coursework:** Ninety graduate credits beyond the baccalaureate degree are required. Completion of about fifty credits of coursework is a requirement for Ph.D. Candidacy.
3. **Annual Review:** The student's department prepares a review of the student's progress at the end of each academic year.
4. **Qualifying Examination:** The qualifying examination contains a written portion and may include an oral component. Successful completion of the qualifying examination is a requirement for Ph.D. Candidacy.
5. **Dissertation Advisory Committee:** The naming of a dissertation advisory committee is a requirement for Ph.D. Candidacy.
6. **Candidacy:** Ph.D. Candidacy begins the dissertation preparation phase of the degree.
7. **Dissertation Registration:** Four consecutive academic-year semesters of registration as a degree candidate are required during the preparation of the dissertation.
8. **Oral Examination:** An oral examination is required of all Ph.D. students. It may be addressed as part of the qualifying examination, a prospectus meeting, a lecture or seminar, or another format approved by the student's department.
9. **Dissertation Prospectus:** After attaining Candidacy, the student prepares a description of the proposed research and dissertation for approval by his/her advisory Committee.
10. **Dissertation Preparation:** The dissertation presents the original scholarship or research completed by the student.
11. **Dissertation Public Lecture-Presentation Defense:** The student presents and defends the dissertation in a public lecture.
12. **Submission of approved dissertation:** The student must submit the approved dissertation electronically.



## Plan of Work

This planning document, which is developed by the student and the advisor, should include both course and non-course objectives. An interim Plan of Work, to be retained in the department, should be developed by the end of the student's first year and updated annually. The final Plan of Work requires the signatures of both the advisor and the departmental Graduate Director prior to submission to the Graduate School for approval. The final Plan of Work (<https://gradschool.wayne.edu/phd/forms/>) may be filed with the Graduate School at any time; however, it must be submitted before forty credits have been completed and before the qualifying examination is scheduled. Once a student has an approved Plan of Work on file with the Graduate School, any changes to that plan are monitored and approved at the department level. The student is primarily responsible for monitoring that they've taken the minimum number of credits to earn the degree; 90 credits total, at least 30 WSU coursework credits, 60 coursework credits total, and 30 dissertation block credits.

**Transfer credit:** A student wishing to transfer graduate credit toward the Ph.D. degree must file a petition with the Graduate School via the Transfer of Credit form (<https://gradschool.wayne.edu/phd/forms/>), approved by his/her advisor and departmental graduate director, requesting such transfer. The petition must be supported by an official transcript showing a minimum grade of 'B' for the courses to be transferred; 'B-minus' and credit earned with 'S' and 'P' (satisfactory or pass) grades are not acceptable for transfer. When students would like to transfer credits from institutions without course codes, the closest WSU equivalents must be listed. When students would like to transfer credits from institutions without letter grades, a conversion chart must be used and submitted to the Graduate School. When students would like to transfer credits toward the 30 required 7000-level and above, evidence that those courses were open to graduate students only, and not undergraduates with special permission, must be submitted to the Graduate School. Up to thirty-two semester credits of 'B' or better graduate credit earned at Wayne State University or another institution prior to the student's admission as a doctoral applicant may be applied toward the degree without regard to lapse of time. Credit earned with 'B' minus or 'S' or 'P' (satisfactory or pass) grades are not acceptable for transfer.

## Ph.D. Coursework

To ensure adequate preparation, the Graduate Council has adopted minimum coursework requirements for the University's highest degree. Many programs will exceed these minima.

A minimum of ninety graduate credits beyond the baccalaureate degree is required for completion of the Ph.D. program. A Ph.D. program will consist of:

1. at least twelve credits of coursework in the major (not including directed study or research credit);
2. sufficient additional coursework to total sixty credits (major and minor coursework, pre-dissertation research and directed study); and
3. thirty credits earned in four consecutive Candidate Status semesters after candidacy has been approved.

The Ph.D. program should provide for effective concentration in a major field with supporting courses in related fields. The decision concerning whether the student's Plan of Work will include a minor is made by the department.

The total Ph.D. program must include thirty credits, excluding Candidate Status semesters, in courses open only to graduate students (i.e., 7000 level or above).

## Directed Study

Registration in directed study must have advance approval of the student's advisor and advance authorization of the student's department. A Graduate School Petition and Authorization for Directed Study must be signed by the student's advisor, instructor, and the Graduate Director of the department before registration. The Directed Study Petition must contain all relevant details, including an explicit course outline, a rationale for the course, and information about the major academic requirements the student must successfully fulfill.

## Mandatory Ph.D. Pre-Candidacy Enrollment

During the pre-candidacy stage, registration is required in all semesters in which the Ph.D. student uses University resources, including the semester(s) in which the Qualifying Examination is taken. The student must register for a minimum of one graduate credit.

## Annual Reviews

All Ph.D. students are required to receive an annual review of the student's progress toward completion of degree requirements. The student's progress in course work, scholarship, teaching, and all other academic or professional areas defined by the department will be summarized and communicated to the student in writing. The annual review must be signed by the student, advisor, and departmental Graduate Director. The annual review is filed in the student's department.

## Individual Development Plans (I.D.P.'s)

To promote long-term career planning and development, all Ph.D. students are required to complete an Individual Development Plan (IDP) by the end of their first year in graduate school. These documents are designed to foster conversation between a student and their mentor(s) about career goals and the skills necessary to succeed in those positions after graduate school. The document is to be updated annually throughout the student's tenure in graduate school to promote follow through on the action plan and to revise the action plan in response to new opportunities and increased competency. This document is completed on-line. It is approved electronically by both the dissertation advisor and the Graduate Director.

## Qualifying Examination

The Qualifying Examination covers the student's primary areas of study and research, as well as such related matters as the qualifying examining committee may prescribe. The Qualifying Exam must contain a written component; an oral component (described later) is optional. No part of the dissertation proposal may be used to satisfy the written Qualifying Examination requirement.

The Qualifying Examining Committee must consist minimally of three members, two of which must be from the major department, and at least two must hold Regular Graduate Faculty appointments. An external member may be added at the discretion of the department. In this latter instance, the department is encouraged to select a person from the student's minor/cognate area. The membership of this committee may not normally be changed until the Qualifying Examination(s) (written or written and oral, as required) have been passed.

If the written component of the Qualifying Examination is not completed successfully at the first administration, the examination may be repeated only once. A second examination may not be held until at least one semester has elapsed, but must be held within one calendar year following the first examination. The same examining committee must preside over both examinations. The second written examination will be considered final.

The student's examining committee will select one of its members to serve as the Graduate Examiner. The results of the oral qualifying

examination are to be communicated to the Graduate School via Report on Doctor of Philosophy Oral Examination form (<https://gradschool.wayne.edu/phd/forms/>). If the Oral Examination is part of the final Qualifying Examination it must be completed within 60 days of the written exam.

If the Graduate Examiner certifies that the applicant has not passed all parts of the oral examination, the committee may recommend that a second oral examination be held. If a second oral examination is recommended, the committee must specify any additional work the student must complete prior to that examination. A second examination may not be held until at least four months have elapsed, but must be held within one calendar year following the first examination. The second oral examination shall be considered final.

## Dissertation Advisory Committee

The dissertation advisory committee shall consist minimally of four members. If there are co-chairs, the committee shall consist of five members. At least two committee members shall be from the student's home department/program, and at least two shall hold Regular Graduate Faculty appointments. The committee chair shall hold a Regular Graduate Faculty appointment in the home unit, and if there are co-chairs, at least the one from the home unit shall hold a Regular Graduate Faculty appointment. The committee shall have at least one external member who broadens the dissertation committee beyond the home program to represent a different perspective by virtue of his/her field, location or knowledge application; who does not hold any salaried or contractual appointment, tenure line or retreat rights in the home program; and, who is familiar with the standards for doctoral research. The expertise of the extra-departmental member must be appropriate to the student's dissertation work. The dissertation director and advisory committee should be identified as early as possible, and by the time course work is completed at the latest. The dissertation advisory committee membership must be submitted to the Graduate School as a condition for attaining candidacy. The committee membership may be changed up to the time the dissertation prospectus is submitted. After Graduate School approval of the dissertation prospectus, any changes in committee membership will require written justification via the Change in Committee form.

**Conflict of Interest:** It is essential that the members of the committee have not only the requisite professional credentials, but that they are also free of conflicts of interest or commitment that could bias or have the appearance of biasing their judgment about the best interests of the student and the scholarly merit of the dissertation. The present policies and procedures provide a means of disclosing and managing perceived or real conflicts of interest or commitment among dissertation committee members. Each committee member must complete and sign the disclosure form, which must be submitted prior to the approval of the Prospectus and Record of Approval form and again at the time of the Dissertation Public Lecture Presentation Defense form. Conflicts of interest or commitment include financial, personal and/or professional affiliations that could potentially or actually affect the member's objectivity about the dissertation or the student. Committee members unable to sign or provide an electronic signature must email the Ph.D. Office with this exact verbiage: I, [committee member's name], do not have a financial, commitment or affiliation conflict of interest with [student's name] nor any member of his/her committee (should a conflict be disclosed, the conflict must be briefly described).

## Candidacy for Ph.D. Degree

A Ph.D. applicant will be advanced to the rank of Ph.D. Candidate by the Graduate School upon the recommendation of the department and completion of the following requirements:

1. Approval of the Plan of Work by the Graduate School;
2. completion of didactic course work, or approximately fifty credits, as required by the Plan of Work;
3. satisfactory completion of the Qualifying Examination(s);
4. identification of the membership of the student's dissertation advisory committee.

(The advisory Committee membership may be changed prior to submission of an approved prospectus to the Graduate School.) The department shall submit the Recommendation for Doctor of Philosophy Candidacy Status form (<https://gradschool.wayne.edu/phd/forms/>) to the Graduate School to recommend advancing the student to degree Candidacy.

## Dissertation Registration

The Doctor of Philosophy degree requires that students register for Candidate Status during the preparation of the dissertation: Doctoral Dissertation Research and Direction I, II, III, and IV (courses numbered 9991, 9992, 9993, and 9994 offered under various subject area codes, respectively), in consecutive academic year semesters. Registration for these four Candidate Status courses equates to thirty credits.

**Ph.D. student enrollment in the first candidate status course prior to candidacy:** Ph.D. applicants may be permitted to register in XXX 9991, Doctoral Candidate Status I: Dissertation Research and Direction, during the semester in which they expect to take their Qualifying Examination. To obtain permission to register, students must already have an approved Plan of Work on file with the Graduate School, and submit written approval prior to the census date from their advisor and graduate director that explicitly states the student is expected to achieve candidacy that term to the Graduate School. Students who submit this request to the Graduate School but do not have a Plan of Work on file by the census date will not be provided the override. Students who do not submit this request to the Graduate School by the census and then do achieve candidacy later in the semester cannot retroactively register for 9991 that semester. Students who achieved candidacy in a previous semester but did not register for 9991 can do so after the census date.

**Courses numbered 9990 should only ever be taken under special circumstances:** If a student is not able to register for 9991 because they are studying for their Qualifying Exam(s) but have finished all 60 credits of coursework, they may request to register for 9990, Pre-Doctoral Candidacy Research, to meet enrollment requirements (8 credits are required for full-time status). Note that 9990 credits do not count toward the 90 required for the degree and cannot be taken in 7.5 credit blocks. If there is any doubt that a student will achieve candidacy, the applicant should register for required coursework or 9990 and not request to register for 9991. Students who register for 9991 but do not achieve candidacy during that term must notify the PhD Office in writing to explain the situation, then register for required coursework or 9990. Up to 8 credits of 9990 can be taken per term; with maximum of 12 credits during the student's degree program. The 7.5 credit blocks are reserved for dissertation blocks (9991, 9992, 9993, 9994).

If a student has registered for all four Candidate Status courses but has not completed the dissertation requirements, the student may register in Candidate Maintenance status (9995) until the requirements are completed, the time limit for the degree is reached, or the student withdraws from the program. Registration in Candidate Maintenance Status is required in all semesters in which the student uses University resources, including the semester in which the student defends the dissertation. The Candidate Maintenance fee is equivalent to the Registration Fee plus the Student Services Fee for one graduate credit and confers full-time registration status.

## Guidelines for Research

All research is regulated by federal, state and local agencies. Approval is required for research involving human participants or animal subjects before research activities begin.

### Human participant research

Federal regulations require that all research involving human participants must be reviewed and approved by an Institutional Review Board (IRB) before research activities can begin. The WSU Institutional Review Board (IRB) is the primary IRB of record for Wayne State University and its affiliated health care institutions (Barbara Ann Karmanos Cancer Institute, Children's Hospital of Michigan, Detroit Receiving Hospital/University Health Center, Sinai-Grace Hospital, Harper Hospital, Huron Valley/Sinai Hospital, Hutzel Hospital, Rehabilitation Institute of Michigan, Oakwood Healthcare System, Michigan Orthopedic Surgery Hospital, and the John D. Dingell Veterans Administration Medical Center). The IRB has the responsibility to review all research that involves human participants and that is performed by faculty, students, or employees of WSU and its affiliated institutions. The authority of the IRB extends to biomedical research and behavioral/social science research, regardless of whether the research is being funded by a federal agency, by commercial companies, by intramural entities or supported by institutional resources. In addition, it includes research conducted on Wayne State University property or its affiliated medical institutions' property. Designation of research as exempt from IRB review requires approval of the IRB chair or their designee.

### The WSU IRB Administration Office

The IRB Administration Office staff is ready to assist you. They offer weekly ongoing training, online training, and are available to answer your questions. The IRB website (<http://irb.wayne.edu/>) contains forms, resources and tools, including a comprehensive handbook to help researchers and their staff with the IRB application process. The WSU IRB Administration Office has a listserv for all researchers and research staff using the WSU IRB. This listserv facilitates communication between WSU researchers and the IRB. To subscribe, send a blank email to [irb-info-subscribe-request@lists.wayne.edu](mailto:irb-info-subscribe-request@lists.wayne.edu) and then confirm when you receive a reply. To unsubscribe at any time, send an email to [irb-info-signoff-request@lists.wayne.edu](mailto:irb-info-signoff-request@lists.wayne.edu). The IRB Administrative Office is located at 87 E. Canfield, second floor, Detroit, MI 48201. Phone: 313-577-1628

### Animal subject research

Federal regulations require that all research involving animals must be reviewed and approved by an Institutional Animal Care and Use Committee (IACUC) before research activities begin. Wayne State University has its own IACUC that reviews protocols for Wayne State University and its affiliated medical institutions (Barbara Ann Karmanos Cancer Institute, Children's Hospital of Michigan, Detroit Receiving Hospital/University Health Center, Sinai-Grace Hospital, Harper Hospital, Huron Valley/Sinai Hospital, Hutzel Hospital, Rehabilitation Institute of Michigan, and the John D. Dingell Veterans Administration Medical Center). In cooperation with research scientists and veterinarians, the IACUC ensures that all research and teaching protocols using live vertebrate animals are designed and carried out in a humane manner that complies with all applicable laws, policies and guidelines. The Division of Laboratory Animal Resources (DLAR) provides informational, species-specific and procedure-specific training sessions for researchers at various times throughout the year.

### The WSU IACUC Administration Office

Detailed information about training and how to submit forms is located on the IACUC website (<http://www.iacuc.wayne.edu/>). The IACUC

Administration Office is located at 87 E. Canfield, second floor, Detroit, MI 48201 (between John R. and Woodward). Phone: 313-577-1629.

### Henry Ford Health System (HFHS)

Please note that Henry Ford Health System has its own IRB and IACUC. Wayne State University faculty and students wishing to do research in those facilities must either submit an Administrative Application to WSU IRB or IACUC after gaining approval from HFHS (if all of the research is being performed there) or submit research proposals to both WSU and HFHS (if the research is being performed in both locations). Questions regarding the type of submission required by WSU can be directed to the IRB or IACUC Office.

## Dissertation Prospectus and Approval

The Ph.D. Candidate must prepare and complete a prospectus of the proposed dissertation research within 18 months of being named a PhD Candidate. If this timeline is delayed, one must request a formal extension of this policy, which must be approved by the dissertation committee, the director of graduate studies, and the Graduate School. In some departments, oral presentation of the prospectus constitutes the required Oral Examination. The student must submit the Doctoral Dissertation: Prospectus and Record of Approval form (<https://gradschool.wayne.edu/phd/forms/>) with the prospectus. The prospectus and form must be approved by the dissertation advisory committee and the departmental Graduate Director, before being forwarded to the Graduate School, which requires a hard copy of the proposal; a completed Conflict of Interest (<https://gradschool.wayne.edu/phd/forms/>); and Institutional Review Board (<http://research.wayne.edu/irb/>)(IRB)/Institutional Animal Care and Use Committee (<http://research.wayne.edu/iacuc/>) (IACUC) approvals, if needed. Students and their dissertation Chair are responsible for following IRB/IACUC regulations and rules.

## Oral Examination

Successful completion of an Oral Examination is a requirement for the Ph.D. degree. The Oral Examination may be administered as part of the Qualifying Examination (see previous discussion of Qualifying Examination), or as part of the prospectus meeting, or a lecture, or in some other departmentally-approved format in which the student presents information orally and answers questions posed by the student's committee. The committee for the Oral Examination must be composed of minimally three members, two must be from the student's department, one must be the advisor; a member outside the department, is optional. The members of the Oral Examination committee may also serve as the student's dissertation advisory committee, but this is not required. At least two members must hold Regular Graduate Faculty appointment status, one must be the advisor. If the Oral Examination is part of the Qualifying Examination, the Oral Examination must be completed within 60 days of the written qualifying examination. If the Oral Examination is part of the prospectus meeting, the results of the Exam are to be reported to the Graduate School via the Doctoral Dissertation: Prospectus and Record of Approval form. The results of the Oral Examination administered in all other contexts should be reported to the Graduate School via the Report on Doctor of Philosophy Oral Examination form.

## Dissertation Preparation

The dissertation should be selected and planned with care; it may be of a research, expository or critical nature. It must be an original work, in or related to the student's major field of specialization. Work submitted for credit in other courses cannot be used in fulfilling dissertation requirements. Neither the results of the research nor the publication of findings may be restricted by any non-University agency. The results of



the research may be published prior to submission and acceptance of the dissertation, with the approval of the dissertation advisor.

Members of a doctoral dissertation advisory committee must read, approve and sign the dissertation. Such approval includes all academic and professional evaluations and judgments as to originality, adequacy, accuracy, significance, methodology, justification or conclusions and correctness of style. Approval shall not be recorded until the work and manuscripts are fully verified and accepted.

**Format:** Candidates preparing manuscripts are instructed to follow closely the Graduate School regulations governing the format of the dissertation. Format requirements are available on the Graduate School website. Two weeks prior to the Dissertation Defense, the student must submit the dissertation electronically for the initial format check. Note that format guidelines are written for Microsoft Word, and students who use other programs are expected to meet the same guidelines.

**Inclusion of Publications in the Dissertation:** In such instances where doctoral students have published work in discipline-appropriate refereed journals, and when the doctoral committee approves, these published materials may be incorporated into the dissertation. For papers so included, the student must be the principal author and/ or have made the major contribution to the published work. In cases of co-authored material, the text of the dissertation must make clear (e.g., in the summary and conclusion) to the reader the original contribution of the author. If published materials are included, references to them in the other dissertation sections may not need to be as detailed as is required in dissertations which do not incorporate published materials.

When a co-author is someone other than the candidate and the advisor, it is recommended that permission to include the publication in the dissertation be secured from the other author(s). Students are advised that incorporation of materials published elsewhere requires permission of the copyright holder. Once permission is secured, it must be cited in the chapter from whom the permission was granted/where the material is already published

Students must format a published article to conform to the body of the dissertation. As well, all remaining sections of the dissertation (e.g., abstract, introduction, conclusions) must conform to Graduate School format requirements.

## Dissertation Public Lecture Presentation-Defense

Two weeks before the planned Defense, each dissertation advisory committee member must have certified in writing, via the Dissertation Public Lecture Presentation-Defense Final Report form (<https://gradschool.wayne.edu/phd/forms/>), that the dissertation has been read and approved for the Defense. Committee members unable to sign or provide an electronic signature may email this exact verbiage to the PhD Office: I, [committee member's name], certify that I have read the dissertation, approve its content and verify that it is ready for the Public Lecture Presentation-Defense. And I, [committee member's name], do not have a financial, commitment or affiliation conflict of interest with [student's name] nor any member of his/her committee (should a conflict be disclosed, the conflict must be briefly explained). The Defense cannot be held without such certification.

**Dissertation Readiness for the Defense:** Dissertation committee members will sign Part 1 of the Defense form and thereby indicate their assessment that the dissertation is ready for the Defense. Under no circumstances will a committee member sign Part 1 of the Defense form if s/he has not read the dissertation. A pre-Defense meeting of the student and whole committee is recommended, allowing committee members to indicate their concerns regarding the dissertation and the

student to make needed revisions. Consequently, no requests for major revisions of the dissertation should arise at the Defense.

The Graduate School requires that all dissertations and theses must be submitted for a plagiarism check through Canvas Learning Management System (LMS) plagiarism check software prior to the defense. The Graduate School further requires that the student's dissertation/thesis advisor or program Graduate Director certify that the dissertation/thesis has been checked through plagiarism software in Canvas. The Defense Final Report form and the first page of the plagiarism check report will be used to transmit the certification to the Graduate School. The Graduate School requires additional justification for reports that suggests evidence of plagiarism.

**Policy on Presence at the Defense:** The Graduate School expectation is that the student and all members of the dissertation committee be physically present at the student's Final Defense of the dissertation. At the very least, the student and the dissertation committee chair(s) must be physically present; a student with dissertation co-chairs must have at least one in attendance. Committee members who cannot attend in person, synchronous audio-visual access, such as Skype, will be required. The Defense will be held during business hours, Eastern Standard Time. Electronic signatures on the Defense form and the title page are accepted.

**Graduate Examiner:** The Graduate Examiner is the presiding officer at the Defense and is responsible for its conduct. Representing the Graduate Council and the Graduate School, the Graduate Examiner serves as an advocate for the student. The dissertation advisor serves as the Graduate Examiner, but the student (or any committee member) may request that the Graduate School appoint a Graduate Examiner from outside the committee.

**The Doctoral Dissertation Public Lecture Presentation-Defense has three phases, as follows:**

**Public Lecture Presentation-Defense:** In the public lecture or presentation, candidates are expected to share the results of their dissertation research with the audience and the dissertation committee. This lecture or presentation may vary in length depending on the circumstances and discipline. At the end of this public lecture or presentation, members of the audience, as well as the dissertation committee members, are encouraged to direct questions pertaining to the presentation or research to the candidate. The Graduate Examiner moderates the questioning.

**Communicating Dissertation Revision Requirements:** To communicate to the Graduate School that revisions to the dissertation were requested at the Defense, a box on the Defense form will be checked that indicates "Changes Required." The dissertation advisor will not sign the dissertation cover page until the student has made all required revisions. Submission of the cover page to the Graduate School will indicate that the student has made the revisions satisfactorily.

**Dissertation Committee's Meeting with the Candidate:** At the conclusion of the public presentation and defense, the dissertation committee members will meet privately with the candidate to pose further questions about the candidate's research or to address issues related to the dissertation manuscript. The Graduate Examiner presides at this meeting.

**Evaluation of the Candidate's Performance:** Upon the completion of the public presentation and defense and the private meeting, the dissertation committee members, in the absence of the candidate and the audience, discuss the candidates' performance and decide whether or not they have passed the defense. The Graduate Examiner chairs the discussion

and communicates the result to the candidate, and subsequently, to the Graduate School within 48 hours of the dissertation defense via the Dissertation Public Lecture Presentation-Defense Final Report form (<https://gradschool.wayne.edu/phd/forms/>).

If the candidate fails the Defense, the advisor and committee may recommend that the student be given the opportunity for a second defense. If a second defense is recommended, the advisor and committee will submit to the Graduate School, the Graduate Director of the program and the student a written description of the areas of weakness and what the student must do to correct the weaknesses. If candidates will need to make extensive corrections to the manuscript (ones requiring more than ten days), they will not be passed. Candidates must wait at least four months before holding another defense. The second defense shall be considered final.

**Ph.D. Completion Deadline:** Each semester the Graduate School establishes a Ph.D. completion deadline calendar for students intending to graduate in that semester, by which time all work must be completed and all required documents submitted, if the Ph.D. degree is to be awarded that term. Any dissertation revisions stemming from the defense must be completed and submitted prior to the completion deadline for the semester, so the manuscript can be accepted for publication by the deadline. Acceptance for publication by the Ph.D. completion deadline is required for a student to graduate that term.

## Submission of Approved Dissertation

The submission of the approved dissertation concludes work pursuant to the doctoral degree. In essence such manuscripts represent a tangible summation of the many hours spent in study and research to acquire a higher education. For this reason such scholarly documents must evidence only the highest standards of research and writing. They must show consistency in punctuation, style and format. It is official policy that acceptance of a dissertation, as well as certification of a candidate for a degree, shall not be granted unless a manuscript is technically correct in format and in a form suitable in all respects for publication.

The corrected dissertation must be submitted and accepted for publication by the completion deadline of the graduation semester. Manuscripts must be submitted electronically. The signature page must also be submitted to the Graduate School.

**Dissertation Publication Plan:** Filing a Doctoral Dissertation Publishing Agreement form is required.

**Dissertation Copyrighting Charge:** Copyright service, provided by Proquest, is available upon request. The student shall pay the amount necessary to cover the cost of copyrighting.

Students wishing to obtain bound dissertation copies for personal use must select a bindery and pay the binding charges for these.

Information regarding completion of additional forms is available from the Graduate School office and website. The Ph.D. degree will be certified only upon receipt of the approved dissertation and the reconciliation of the student's Plan of Work and transcripts.

## Graduation

Each candidate for a degree or certificate must file a *Graduate Application for Degree* by the end of the fourth week of classes in the semester in which they expect to complete the requirements for the degree. If an application for a degree was filed for a previous term in which the student did not graduate, a new application is necessary.

## Commencement

Information concerning commencement announcements, caps and gowns, invitations, tickets, time and place, assembling and other relevant

items will be mailed to the graduates by the Commencement Office prior to the event. Candidates for advanced degrees are requested and expected to attend the commencement at which the University confers upon them the honor of the degree earned.

## Exceptions

A student who wishes to request an exception to any of the Ph.D. program minimum requirements should file a written, detailed petition with his/her advisor. If the advisor approves the petition, they will forward it, along with their recommendation, to the Chairperson of the departmental Graduate Committee. If approved by the department, the petition will be forwarded to the Graduate School. All exceptions must ultimately be approved by the Graduate School. Appeals of decisions follow the same process; appeals of Graduate School decisions may be presented to the Provost.

## Time Limitation for Doctoral Programs

Students have a seven-year time limit to complete all requirements for the Ph.D. degree. The seven-year period begins with the end of the semester during which the student was admitted to doctoral study and was completing work toward meeting the requirements for the degree. In order to request a time extension, a student may petition his/her advisor. If the advisor supports the request, it is forwarded to the chairperson of the departmental Graduate Committee, and if approved, it is reviewed by the Graduate School. The petition must include information concerning the reasons for the request, an explanation of how the student's circumstances have changed to enable them now to complete the dissertation, compelling evidence that the student's dissertation is in progress, a plan and timeline for completion of the dissertation, an explanation of how the student has remained current in his/her field, and a copy of the current annual review. The initial request for a time extension must be filed within six months of the expiration date. There is no grace period for additional time extensions that may be granted after the initial request. To be considered eligible for a time extension, the student must have an approved prospectus on file at the Graduate School. If students do not complete the program within ten years of their applicant date with approved time extensions, the written qualifying examination(s) must be repeated and passed by the end of the time extension. Students who have been granted time extensions must complete all program requirements within twelve years of the applicant date.

## Foreign Language Requirement

The Ph.D. Foreign Language Requirement is a matter of departmental option. Students are advised to contact the department in which they intend to major in order to determine the nature of the Ph.D. foreign language requirement, if any, for that discipline.

Doctoral students should bear in mind that most departments reserve the right to require foreign language proficiency for any Ph.D. student pursuing research which would benefit from the use of foreign language materials, even though other students in the same Ph.D. program are not required to establish foreign language competence.

## Ph.D. Residence Requirement

The Ph.D. requirement of one year of residence is met by completion of at least six graduate credits in course work, exclusive of dissertation, in each of two successive semesters. The spring/summer semester may be excluded from the definition of successive semesters. Additional residence requirements may be imposed by the Ph.D.-granting departments. The student should contact the major department to determine what residence requirements must be satisfied.

In the experimental sciences for which it can be demonstrated that a student's research must be completed on campus, the residence

requirement for the Ph.D. degree may be met by the dissertation director's written certification that the student has been in full-time residence for at least two successive semesters and one summer session. In this latter case, a count of course credits is not required for the fulfillment of the residence requirement, but specific dates of residence must be furnished.

In addition, the Ph.D. residence requirements stipulate that the student must elect at least thirty credits in graduate work exclusive of dissertation direction at the University.

## Certificates: Graduate and Bridge Graduate Programs

Programs leading to Graduate Certificates and to Bridge Graduate Certificates are available through several University units and are open to students who meet the general graduate admission requirements of the University; individual programs may have additional admissions requirements. The specific number of credits required for completion varies by program, though Certificate programs must consist of at least twelve graduate credits.

**Graduate Certificates** may be earned independently of or concurrently with a graduate degree. A Graduate Certificate program must be completed within three years, a minimum grade point average of 3.0 in certificate courses must be maintained, and only nine semester credits of certificate course work may be applied toward a graduate degree.

**Bridge Graduate Certificates** are certificate programs designed to provide students with specialized knowledge that may subsequently be applied toward the requirements of a designated Master's degree and may be viewed as transitional to a Master's program. The program is for students who hold at least a baccalaureate degree and are admissible to graduate studies.

The Bridge Graduate Certificates are generally housed in the same unit as the Master's program that proposes it. The Certificate program consists of at least twelve graduate-level credits be completed within three years and a minimum grade point average of 3.0. No transfer credits are accepted into a Bridge program. The curriculum consists of courses from the corresponding Master's program. All courses in the Bridge Certificate may be applied toward the requirements of the designated Master's degree, given that they meet the approval of the Master's program and the six-year time limit for Master's degrees. For specific certificate requirements interested students should consult the specific certificate program descriptions in this Bulletin or contact the sponsoring department.

## Dual-title Graduate Degrees

A dual-title degree program is designed to provide additional valuable course work not prescribed in an existing major program. The dual-title degree program consists of two components: an area of study, in which there are graduate course offerings and faculty strength but no graduate degree program, and one or more major degree programs that adopts the area of study and integrates its content into the coursework and progressive stages of the major program, including the Qualifying Examination, thesis and dissertation. The dual-title areas of study are not available as separate graduate degree programs.

Potential dual-title areas of study typically are interdisciplinary with courses and faculty housed in various departments. When incorporated into an existing program, they provide students with knowledge and skills graduates of traditional programs do not have. Dual-title areas often exist in new and emerging fields, generally where the most significant advances in research occur. The addition of a dual-title area to an

existing degree program enables graduates to acquire the most current knowledge and up-to-date research skills beneficial to the major program.

## Joint Degrees

A joint degree program is a formally approved and authorized program between two cooperating graduate or graduate and professional programs that permits the use of a limited number of credits to fulfill requirements in both programs. The joint degree programs offer exceptionally talented students the opportunity to acquire expertise and knowledge in a shorter time than is possible by completing two separate degrees in sequence.



# Records and Registration

## Office of the Registrar

In Person Services: Student Service Center, Welcome Center, 42 West Warren

Mailing Address: 5057 Woodward; Suite 5101, Detroit, MI 48202

Telephone: 313-577-3550, Fax: 313-577-7870

h (<http://www.reg.wayne.edu/>)t(<http://wayne.edu/registrar>) (<http://wayne.edu/registrar/>)

The Office of the Registrar supports the instructional, research and service missions of the University by providing a wide variety of academic services to students, faculty and staff. The office consists of several units: The Office of the Registrar prepares academic calendars, assesses tuition and fees, determines residency, and reviews all appeals for exceptions to University enrollment policies. Records and Registration oversees registration, adds, drops, course withdrawals, grading, student personal and academic data, and transcripts/academic records. Curricular Services oversees the preparation of each term's Schedule of Classes, degree audit tools, graduation applications and diplomas. Transfer Credit evaluates coursework from other universities for undergraduate credit at Wayne State University.

## Registration

Registration (<https://wayne.edu/registrar/registration/>) is the process of officially enrolling in classes for a particular term. Students can view the Class Schedule (<http://classschedule.wayne.edu>) online, add courses to their cart, and complete registration within Academica. A student may not attend any class for which he/she is not officially registered.

**POST-BACHELOR STATUS:** Students wanting graduate credit should NOT register 'post-bachelor.' This status allows students holding bachelor's degrees from accredited institutions to elect only courses open to undergraduate students (numbered below 7000), which may be used to fulfill prerequisite requirements for graduate admission. Credits for courses elected as a post-bachelor student do *not* count toward graduate credit.

## Academica

Academica (<http://academica.wayne.edu>) is a secure gateway that provides unified access to Wayne State information, services, and computing systems. This comprehensive environment is a one-stop location where WSU students, faculty, and staff can conveniently use online self-service functions and easily access many computing systems, such as the Wayne Connect Email system and the Canvas learning management system. Using Academica, students also have continual access to specific information and helpful tools needed for communication, collaboration, teaching and learning, and University administration. Current students can use secure self-services to check financial aid, register for and drop/add classes, pay tuition and fees, check holds and final grades, obtain enrollment verifications and transcripts, self-register for training programs/workshops, and more.

Accessing Academica requires a valid WSU Access ID (<https://tech.wayne.edu/kb/accessid-accounts/accessid/>) (e.g., xy6789) and password. As soon as a student applies for admission or an employee is hired, a unique Access ID is automatically created. The university's Help Desk (<https://tech.wayne.edu/helpdesk/>) services can provide technical assistance if necessary.

## Degree Works

Degree Works (<http://wayne.edu/degreeworks/>) is a degree tracking tool that allows you to see your progress toward graduation and help you and

your advisor determine which courses you still need to take. Along with your advisor, you can also map out which courses you will take in future semesters, putting you on the right path for graduation.

## Drop/Add – Adjusting Your Schedule

Registered students may drop and/or add classes on the date(s) indicated on the Registration Calendar. Note the following requirements:

1. The regulations pertaining to dropping and adding courses are stated as they pertain to regular courses fifteen weeks or more in duration. These regulations are applied proportionately to courses that are offered for less than fifteen weeks. Students can click on the Course Reference Number (CRN) on the class schedule website to view specific deadline dates for each course(s). Students can also contact the Registration Office for any questions regarding these regulations.
2. Students who do not officially drop their courses within the first two weeks of classes are financially obligated to pay for the courses even if they have not attended any class sessions.
3. Students who officially drop full term courses before the conclusion of the first two weeks of classes (for the Fall and Winter terms) are entitled to 100% tuition cancellation, and the courses do not appear on the students' academic records.
4. Students are not permitted to add courses after the first week of the term without instructor and departmental permission. Departments are required to enter a late add permit/override for students if exceptions are made to permit adding of classes during the second week.
5. Students are not permitted to withdraw from courses after the end of the tenth week of class for full term classes. The withdrawal deadlines are published in each term's academic and registration calendar. Withdrawal dates for less than full term courses are adjusted proportionally. Late withdrawal requests will not be approved. Medical withdrawal requests have separate deadlines.
6. Effective Fall 2022, all withdrawals will show as a W on the transcript. W marks are not calculated in your g.p.a, and there is no tuition cancellation for withdrawn courses. The request to withdraw can be made on Academica in the Student Resource area of the Registration menu.
7. Classes for which a grade has been earned cannot be withdrawn.

*College of Engineering:* Students are not permitted to withdraw from courses after the fifth week of classes without written approval of their advisor. Some departments have more stringent restrictions on withdrawing from courses.

## Transcript Request Policy

Official transcripts bear the seal of the University and the signature of the Registrar.

Wayne State University has partnered with the National Student Clearinghouse (NSC) to provide online ordering of WSU official transcripts. Ordering a transcript from NSC is easy, secure, and a more convenient way to order online at any time. Once a transcript is ordered it can be tracked through text message and email.

*The National Student Clearinghouse transcript request is the only method in which official transcripts may be requested. Wayne State University does not accept transcript requests over the phone.*

- **Electronic transcript:** A transcript requested electronically is typically received the same day it is ordered.
- **Mail transcript:** A transcript being mailed through the United States Postal Service could take up to 2-3 days processing time before mailing. Additional delivery options are available on the NSC site.

- **Students who attended prior to 1998:** There may be a 3-5 day delay in processing your order.
- **Transcript Attachment Options:** You may include up to three documents to be sent with your Wayne State University transcripts, such as application forms required by recipient graduate/scholarship programs or for licensing. These documents must be in pdf, doc, docx, or jpg formats. Upon review, we reserve the right not to include certain documents with your transcripts. We do not assume responsibility regarding the legibility of your document.

Visit the Office of the Registrar's transcript webpage (<https://wayne.edu/registrar/records/transcript-requests/>) to submit a request for an official transcript.

## Release of Student Records

The University recognizes the educational records of students as being privileged and has a policy designed to ensure that this information is not improperly divulged without the consent of the student. The University is subject to the Family Education Rights and Privacy Act (<https://wayne.edu/registrar/faculty/privacy/>) (FERPA) and has promulgated regulations pursuant thereto. Copies of the regulations and a list of student records maintained by the University are available for inspection in the Office of the Registrar. The University reserves the right to provide anonymous academic information to other schools and colleges when it is to be used for curriculum evaluation purposes.

## Michigan's Freedom of Information Act

The Freedom of Information Act (PA 242) provides that a member of the public, in accordance with certain guidelines, has a right to inspect and receive copies of public records maintained by the University. A public record is broadly defined and includes written documents, pictures, recordings, punch cards, magnetic cards, etc., which are maintained by the University in the course of official responsibilities. However, certain records are exempt from disclosure.

The Media Relations Office, located in 3100 Academic/Administrative Building, is responsible for accepting requests for public records, and the Director of that office is the University officer in charge of providing this service. Under statute, a fee can be charged for records released and is based on the cost of labor involved in the search, examination and duplication of records, as well as the mailing costs. Only the Office of General Counsel may authorize the denial of a FOIA request.

## Student Directory Information

Under the Family Education Rights and Privacy Act (FERPA), the university can designate information as directory information, which may be released to third parties. Wayne State University considers the following information to directory information: name, university-provided e-mail address, major, classification (freshman, sophomore, etc.), enrollment status (full-time, three-quarters-time, half-time, less-than-half-time, withdrawn), dates of attendance, participation in officially recognized university activities (including sports), height and weight of members of athletic teams, degree(s) received from Wayne State, and Honors and/or academic awards received.

Wayne State does not release directory information to third parties for commercial or non-educational purposes. Requesters are expected to explain the benefit to our students.

You may opt in or opt out of the release of directory information by filing a Request to Restrict Release of Directory Information Form (<https://wayne.edu/registrar/faculty/forms/>) with the Records and Registration Office.

The University will release student information made under the Solomon Amendment (10 USC Section 983) by Department of Defense recruiters. Accordingly, students may **not** opt out of this type of release.

## WSU OneCard

The WSU OneCard is a multi-purpose identification and debit card all in one. It is a convenient, easy-to-use card designed to provide students with access to a wide variety of campus services including. parking, door access, copying and printing services food and book-store purchases, and more, all without having to use cash. The OneCard is needed to access the fitness center, the complimentary campus shuttle and serves as the Library Card for the WSU Libraries. Students should contact the OneCard Office (<http://www.onecard.wayne.edu/>) for complete details.

## Retention and Graduation Data

The Office of Institutional Research and Data Analysis (IRDA) submits the following retention and graduation rates to the Integrated Postsecondary Education Data System (IPEDS) on behalf of the university. More information on the university's retention and graduation rates can be found on the IRDA website (<https://irda.wayne.edu/>).

### 2nd Year Retention Rates for First-time Students Pursuing Bachelor Degrees (fall 2022 students returning in fall 2023)\*

**Full Time:** 82%

**Part Time:** 47%

\* Source: IPEDS Fall Enrollment 2023-2024 submission.

### Graduation Rates for First-time Full-time Students Pursuing Bachelor Degrees (Fall 2017 cohort)\*

Description	At the End of 4-years	At the End of 6-years
Overall Graduation Rate	33%	57%
Overall Transfer-out Rate		23%
Graduation Rate by Sex		
Male	28%	53%
Female	36%	59%
Graduation Rate by Race		
U.S. Nonresident	47%	74%
Hispanic/Latino	21%	45%
Asian	47%	75%
Black or African American	13%	31%
Native Hawaiian or Other Pacific Islander	50%	50%
White	36%	62%
Two or more races	18%	37%
Race and ethnicity unknown	33%	56%

\* Source: IPEDS Graduation Rates 2023-2024 submission.

# Tuition and Fees

Listed below are the Tuition and Fees, as adopted by the Board of Governors, for the 2024-25 Academic Year. Please see the Undergraduate Bulletin (<http://bulletins.wayne.edu/undergraduate/>) for rates in Undergraduate programs. Current tuition and fee information is also available on the Office of the Registrar's website (<https://wayne.edu/registrar/tuition/>). **Tuition and Fees are subject to change without notice by action of the Board of Governors.**

## Tuition and Fees, Graduate

### All Schools (other than listed below)\*

Resident	\$796.84 per credit
Non-Resident	\$1,725.96 per credit

\* Schools covered in this section include: Education (except for Division of Kinesiology), Graduate School, Liberal Arts and Sciences, and Social Work.

### Education (Division of Kinesiology)

Resident	\$905.93 per credit
Non-Resident	\$1,835.05 per credit

### Business, Engineering \*\* and Information Science

Resident	\$924.85 per credit
Non-Resident	\$1,853.97 per credit

\*\* This includes all Engineering programs except for the Global Executive Track in Industrial Engineering.

### Global Executive Track Doctoral Program in Industrial Engineering

Resident	\$1,849.70 per credit
Non-Resident	\$2,778.82 per credit

### Fine, Performing and Communication Arts

Resident	\$836.69 per credit
Non-Resident	\$1,765.81 per credit

### Law: J.D. and Graduate Programs

Resident	\$1,239.58 per credit
Non-Resident	\$1,359.87 per credit

### Medicine: Graduate Programs

Resident	\$992.61 per credit
Non-Resident	\$1,873.88 per credit

### Medicine: M.D. Program

Resident (Flat Rate)	\$39,975.00
Resident (Per Credit)	\$801.00 per credit
Non-Resident (Flat Rate)	\$66,998.00
Non-Resident (Per Credit)	\$1,339.00 per credit

\*\*\* M.D. students registered for at least 10 credits per term will be charged a flat term rate (annual rate/four terms) along with associated fees. All students registered for less than 10 credits per term will be charged per credit hour along with associated fees.

## Nursing

Resident	\$1,087.11 per credit
Non-Resident	\$2,016.24 per credit

## Pharmacy and Health Sciences

Resident	\$905.93 per credit
Non-Resident	\$1,835.05 per credit

### Pharmacy and Health Sciences: Pharm.D. Program

Resident	\$905.93 per credit
Non-Resident	\$1,177.70 per credit

## Registration Fee

There is a \$370.73 registration fee for graduate and professional students (other than M.D. students). The registration fee is refundable according to the same principles as tuition and other fees.

## Late Registration Fee

Any student registering after the priority registration date (<https://wayne.edu/registrar/registration/>) must pay either a \$35.00 Late Registration Fee if registration is completed before the start of classes or \$70.00 if completed after the start of classes. Late Registration Fees will be waived for new students in their first term of WSU enrollment.

## Student Services Fee

Graduate and professional students (other than M.D. students) are assessed a \$64.07 fee per credit per term. The Student Services Fee is used primarily to maintain, upgrade and replace student computing and technology resources on campus. A small portion is also used to fund student activities on campus, and to enhance programs directed toward improving on-campus activities, including athletics.

## Doctoral Candidate Maintenance Fee

If a student has registered for all four Candidate Status courses but has not completed the dissertation requirements, the student may register in Candidate Maintenance status (9995) until the requirements are completed, the time limit for the degree is reached, or the students withdraws from the program. Registration in Candidate Maintenance Status is required in all semesters in which the student uses University resources, including the semester in which the student defends the dissertation. The Candidate Maintenance fee is \$434.80 (equivalent to the Registration Fee plus the Student Services Fee for one graduate credit) and confers full-time registration status.

## Medical Student Fees

M.D. students are assessed a Student Service Fee of \$406.00 per term (4 terms in total) and an annual Student Support Fee of \$1,080.00.

## Student Exchange and Visitors Information Service (SEVIS) Fee

International students and scholars/visitors who must be reported through the federal SEVIS system shall be charged a \$50.00 non-refundable fee for each term of enrollment.

## Course Material Fees

These fees are required of some classes in which a relatively large portion of instructional costs is due to the necessary use of consumable resources. The fee is automatically assessed; a fee card is not required. The fee may be canceled when a course is officially dropped within the tuition and fee cancellation period specified in each semester's term calendar. For additional information, contact the Department offering the

course. Courses listed as having special fees require payment of the fee in addition to the tuition.

## Music Fees

Students registering for music courses taken as private lessons pay an additional fee. In the event of withdrawal, the student will receive a refund of the difference between the fee assessed and the cost to the University of any lessons that were provided.

## Examination Fee for Credit by Examination

The fee for an examination taken to establish credit by examination is \$10.00 per credit. Such examinations will be approved under provisions established by the Schools and Colleges. Credit allowed on the basis of transcript entries from another institution is not applicable to this provision.

## Graduation/Certificate Fee

There shall be a \$40.00 fee for students who apply for a degree or certificate/diploma. Graduate applicants for graduate degrees will not be charged the Graduation Fee as they pay a higher Registration Fee. Undergraduates who are new to the university in fall 2014 or after will pay a Matriculation Fee in lieu of a Graduation Fee and in lieu of an Orientation Fee.

# Payment of Tuition and Fees

## Student Financial Obligation for Payment of Tuition and Fees

When registering for courses each semester students are required to electronically sign a "Financial Responsibility Agreement." This agreement represents a binding contract obligating the student to pay all tuition and fees assessed including any collection, attorney, and/or litigation costs associated with collecting those fees, in the event of non-payment.

## Payment Due Dates

- FALL TERM: Payment is due August 15.
- WINTER TERM: Payment is due December 15.
- SPRING/SUMMER TERM: Payment is due April 15.

Students registering on or after these payment dates are expected to pay the balance in full at the time of registration.

Payments not received by the due date(s) are subject to late payment fees. Failure to make payment because a statement of account or invoice is not received does not exempt students from late payment fees. Please refer to the Office of the Bursar's complete eBill Posting Schedule and Payment Due Dates (<https://wayne.edu/bursar/ebill/ebill-schedule/>).

## Payment Options

The Office of the Bursar provides complete details for the available tuition and fee payment options (<https://wayne.edu/bursar/payment/>).

## Delinquent Prior Term Balances

Personal checks are not accepted as payment for delinquent balances. Payment must be made by cash, certified check, money order or credit card.

**IMPORTANT:** Students who do not drop their courses during the tuition cancellation period for the term are financially obligated to pay for the courses even if they have not attended any class sessions. Specific dates are available in the Academic Calendar (<http://bulletins.wayne.edu/undergraduate/general-information/calendar/>).

Students with questions regarding any information presented in Payment of Tuition and Fees section above should contact the Office of the University Bursar at 313-577-3653.

## Disclosure Statement

The University reserves the right to update and/or change this information at anytime.

## Late Registration

Registration is not permitted beyond the prescribed registration date unless extenuating circumstances beyond the control of the student warrant an exception to University Policy as determined by the University Registrar. In such cases, full tuition, Registration Fee and Late Registration Fee is due on the day of registration.

## Short Term Courses

Payment of the full tuition and the non-refundable Registration Fee is required on the date of registration or no later than the first class meeting date. Late Payment Fees are assessed to any student who has not paid his/her tuition and fee assessment by the eBill due date.

## Special Adjustments

The University Registrar is authorized to make adjustments in the application of the policies stated in this section when unusual circumstances warrant. Examples of circumstances which may warrant special consideration include: serious illness or death of the student or someone closely related, or mis-advisement by a University representative. Tuition cannot be canceled for reasons such as changes in work schedule or other employment demands, claims of lack of information, insufficient funds, unawareness of the difference between tuition and student financial aid, undocumented reasons, or for reasons that are within the control of the student. Non-attendance, except for situations falling under the University non-attendance policy (below), is not in and of itself a reason for tuition and fee cancellation. Students (or an authorized representative in the case of death or serious illness) must submit their applications and supporting documentation to the Office of the Registrar. A medical withdrawal is a complete withdrawal from all courses, supported by medical reports from the attending physician. Requests for exceptions to tuition and fee policies must be submitted within approximately two months of the end of the term, as follows:

- Fall Term - March 1
- Winter Term - July 1
- Spring/Summer Term - November 1

Deadlines falling on weekends will be extended to the next business day.

## University Non-Attendance Policy

The University Non-Attendance Policy will allow 100% tuition cancellation only for students in their first term of attendance at Wayne State University. Instructors for all courses must verify the student did not attend classes after the tuition cancellation deadline. This policy is designed to provide relief to those students who in their first semester at Wayne State may not be familiar with the University's Tuition Cancellation Policy.

Where the student has otherwise proceeded properly, (s)he may be granted full cancellation of tuition and fees assessed for the class(es) involved:

- If the University cancels the class(es), or
- If the University re-schedules the class(es) after the student has registered and (s)he is now unable to attend, or
- If an authorized University representative has taken action which causes financial loss related to tuition, e.g., authorizing a



student's schedule when the student does not have the necessary prerequisite(s).

**Appeal Procedures:** If a student (or an authorized representative in the case of death or serious illness) is dissatisfied with the Registrar's decision with reference to this policy, the student (or an authorized representative) may appeal to the Tuition and Fee Appeals Board through the University Ombudsperson.

University policy allows for a Request for Medical Withdrawal. A medical withdrawal is a complete withdrawal from all courses. For approved requests, the University Medical Withdrawal Policy will grant 100% tuition and fee cancellation if a student stops attending ALL classes before the end of the 10th week of the scheduled class meeting period in a full fall/winter term. Medical documentation will need to confirm that medical attention was provided during this time period. For medical withdrawals occurring during the 11th or 12th week, tuition cancellation will be granted at the rate of 60%. There is no tuition cancellation after the twelfth week of the term. These periods are adjusted proportionally for courses that do not run the full term. While a request is under review tuition payments should be made as scheduled.

## Tuition Cancellation

Tuition may be canceled in accordance with the following schedule when students officially drop classes using the Academics on-line portal, by submitting a properly completed Register/Drop/Add form, or by sending a certified letter to the Office of the Registrar. A certified letter requesting to drop classes sent through the U.S. Postal Service shall be considered effective on the date it is received in the Office of the Registrar.

Students who officially drop classes before the conclusion of the first two weeks of classes (for the Fall and Winter terms) are entitled to 100% tuition cancellation, and the dropped classes do not appear on the academic record.

Students are contractually liable for tuition unless they take official action during the tuition cancellation period to drop classes.

Students who officially withdraw from fifteen-week classes after the second week of classes (for the Fall and Winter terms) are not entitled to any tuition cancellation.

The tuition cancellation schedule shown below applies to courses that start in accordance with the Official University Academic Calendar. The tuition cancellation schedule for courses with specially approved starting dates is dependent upon the starting date of the course. Questions about the tuition cancellation schedule should be referred to the University Registrar.

**Classes meeting fewer than four weeks:** Students who officially drop scheduled classes before the first day of classes are entitled to a 100% tuition cancellation and 0% thereafter.

**Classes meeting four to eight weeks:** Students who officially drop scheduled classes before the second week of classes are entitled to a 100% tuition cancellation and 0% thereafter.

**Classes meeting nine to fifteen weeks:** Students who officially drop scheduled classes before the third week of classes are entitled to a 100% tuition cancellation and 0% thereafter.

**Classes meeting sixteen to twenty-seven weeks:** Students who officially drop scheduled classes before the fourth week of classes are entitled to a 100% tuition cancellation and 0% thereafter.

**Classes meeting twenty-eight or more weeks:** Students who officially drop scheduled classes before the seventh week of classes are entitled to a 100% tuition cancellation and 0% thereafter.

## Tuition Regulations and Review Procedures

The following regulations and review procedures are established by Wayne State University for tuition and fee purposes. Wayne State University recognizes three means by which an individual may establish eligibility for in-state tuition and fees:

1. By establishing residence by presence in the State of Michigan;
2. By establishing attendance at Michigan high schools; or
3. By establishing military service status.

### Establishing Residence by Presence in Michigan

Generally, in order to establish residence by presence in the State of Michigan, an individual must document at least six months of continuous physical presence in the State. The six months continuous residence must be completed before the first day of classes for the semester in which in-state tuition is sought. Even if someone is present in Michigan for six months, the person may not qualify for in-state tuition; it depends on whether the person is in Michigan for educational purposes or some other reason. Under limited circumstances which clearly demonstrate that a student's presence in the State of Michigan is not primarily for educational purposes, the student may be eligible for in-state tuition prior to the passage of the six-month presence requirement.

### Temporary Absences

In general, a person's residence is the place where he or she actually lives with the intention of making it the person's permanent home and to which he or she intends to return from temporary absences. A person may be temporarily absent from Michigan without affecting his or her previously established residence. Full-time attendance at a school outside Michigan or enlistment in a military service are examples of temporary absences. Other types of absences for more than six months will be presumed not to be temporary.

### Presence for Educational Purposes

Coming to Michigan from another state or country in order to attend Wayne State University or another school does not establish residence. A non-resident at the time of his or her enrollment remains a non-resident throughout his or her presence as a student, except where it can be established that presence in the State of Michigan is primarily for purposes that are not educational, with enrollment only incidental to the primary purpose of being in Michigan. If a student enrolls in undergraduate school for more than eight credits, or in graduate school for more than six credits, or in Law School for more than ten credits in any one full length semester, within six months after arrival in Michigan, Wayne State University normally presumes that the student is in Michigan for the purpose of attending school. Applicants must demonstrate that their presence in Michigan is primarily for purposes that are not related to enrollment.

### Factors Considered in a Residence Classification

The following circumstances, although not conclusive, support a claim for in-state tuition on the basis of residence:

1. The student is employed in Michigan on a permanent, full-time basis or has accepted an offer of permanent employment in Michigan.
2. The student's parents (or in the case of divorce, one parent) are legal residents of Michigan as shown by their permanent employment in Michigan and/or their establishment of a primary household in

Michigan, and the applicant previously was a resident of Michigan and has maintained significant connections to Michigan.

3. The student's spouse or partner is employed in Michigan on a permanent, full-time basis and the applicant moved to Michigan as a consequence of that employment; and
4. The student has severed ties to his or her previous state of residence so that he or she no longer can reasonably be considered to be a resident of another state.

## Factors Typically Not Supporting Residence Classification

The following circumstances, standing alone, do not typically support residence, inasmuch as they may be common to a temporary or short-term presence in Michigan:

1. Employment by the University as a fellow, scholar, assistant, or in any position normally filled by students;
2. A statement of intention to establish residence in this state;
3. Payment of local and state taxes; or
4. Automobile registration, driver's license, continued presence in Michigan during vacation periods.

Although insufficient to establish residence, certain of these factors may be taken into consideration in determining whether a student has severed ties to the student's previous state of residence.

For purposes of these regulations, the age of majority is eighteen years. Except as provided in paragraph 7 of this section, a minor does not have the capacity to establish his or her own legal residence. Normally, the legal residence of a minor follows:

1. That of the parents or surviving parent; or
2. That of the parent to whom custody of the minor has been awarded by a divorce or other judicial decree; or
3. That of the parent with whom the minor in fact makes his or her home, if there has been a separation without a judicial award of custody; or
4. That of an adoptive parent, where there has been a legal adoption, even though the natural parents or parent may be living; or
5. That of a "natural" guardian, such as grandparent with whom the minor in fact makes his or her home, where the minor has permanently left his or her parental home and reasonable expectation of substantial financial support from the parents has been dissolved. A natural guardian is someone who, although not legally the minor's parent or guardian, performs the same sort of parental duties.
6. If a Michigan resident parent or guardian of a minor moves his or her residence to another state, the minor shall remain eligible for resident tuition status as long as he or she continues to attend school regularly in this state.
7. A minor who has permanently left his or her parental home, and who has no reasonable expectation of significant financial support from his or her parents or legal guardian, etc., may qualify for resident status even if under eighteen years of age.

## Non-U.S. Citizen

A non-U.S. citizen may apply for resident status in the same manner as a citizen, if he or she is in the United States for other than a temporary educational purpose. In order to demonstrate this, applicants must provide evidence from the U.S. Department of Citizenship and Immigration Services of one of the following:

1. A U.S. permanent resident alien with a green card.
2. An applicant for U.S. permanent residence whose Petition for Alien Relative, or Employment-based Immigration Petition for Alien

Worker has been approved, or who has been issued an Employment Authorization document pending adjustment of status. These individuals will have documentation of this status such as an I-130 (Petition for Alien Relative) or I-140 (Immigration Petition for Alien Working) Approval Notice, or an I-151 or I-551 Notice of Action indicating approval of petition to become an immigrant.

3. An alien with a current valid visa type issued for purposes of working in the United States, and currently working in the State of Michigan. These currently include visa types of A, E, G, H, I, L, R, and TN.
4. An Alien granted asylum or refugee status.

## Attendance of Michigan High Schools

An individual may be eligible for in-state tuition on the basis of high school attendance if he or she demonstrates that he or she:

1. Attended an accredited Michigan high school for at least three years and thereafter graduated from an accredited Michigan high school or obtained his or her GED in Michigan; and
2. Enrolls at Wayne State University within twenty-eight months of graduating from high school or obtaining a GED.

An individual does not need to be a legal resident of Michigan or a citizen of the United States to qualify for in-state tuition on the basis of attendance at Michigan schools.

## Military Service

Individuals on active duty in the U.S. Military who are stationed in Michigan and their dependents are eligible for Michigan in-state tuition. Stationing orders and proof of relationship (for dependents) must be provided with the application.

Veterans and their dependents are eligible for Michigan in-state tuition. The term "veteran" means a citizen of the United States or a resident alien whose most recent separation from any branch of the armed forces of the United States was under conditions other than dishonorable after having served on active duty for 90 consecutive days or more or by reason of disability incurred while serving on active duty.

Individuals who are members of the National Guard of any state, or who were separated from the National Guard of any state under conditions other than dishonorable, and their dependents are eligible for Michigan in-state tuition.

Without regard to the foregoing, any individual using educational assistance under either Chapter 30 (Montgomery GI Bill® – Active Duty Program), Chapter 33 (Post-9/11 GI Bill®), of title 38, United States Code, and/or the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. § 3311(b)(9)) who lives in the State of Michigan while attending Wayne State University (regardless of his/her formal state of residence) is eligible for Michigan in-state tuition.

## Good Neighbor Provisions

Residents of Fulton, Lucas, Ottawa, and Williams counties in Ohio, or residents of Ontario, Canada, who are enrolled in eligible graduate programs will pay in-state tuition. WSU Tuition and Fee Regulations published each academic year identify specific academic programs eligible for this provision.

## Great Lakes Policy (Undergraduate Only)

Residents of the states of Ohio, Indiana, Illinois, Wisconsin, Minnesota, New York, or Pennsylvania, or the province of Ontario, Canada, who are enrolled in eligible undergraduate programs and who are not eligible for the Good Neighbor Policy may pay tuition and fees at 110% of the then-current in-state rate.



## Online Programs

Students enrolled in programs which are offered online in their entirety will have the out-state portion of their tuition waived. WSU Tuition and Fee Regulations published each academic year will identify the specific academic programs eligible for this provision.

## Review Procedures

### Initial Classification and Appeal

1. The student is responsible for registering under proper residence or tuition status and advising the University of changes in circumstances, which might affect tuition status. Questions concerning a student's residence or tuition status prior to enrollment should be raised with the Office of Admissions. Questions arising after enrollment should be raised with the Registrar's Office.
2. After enrolling, a student may challenge the initial classification made by the Office of Admissions by filing an Application for Residence Classification or Change in Tuition Status with the Registrar's Office.
3. Except for documented delays caused by University personnel, such applications must be filed by:
  - a. September 30 for the Fall semester and the Medical Year semester
  - b. January 31 for the Winter semester
  - c. July 31 for the Spring/Summer semester

Deadlines falling on weekends or on days when the University is closed will be extended to the next business day. Applications received after these dates will be processed for the following semester.

### Further Appeal

A student may appeal the initial tuition decision as follows:

1. By filing a written notice of appeal with the Registrar within thirty (30) days after the student is notified of the classification decision. The notice of appeal shall include reasons for the appeal, the period for which resident status is claimed, and a complete statement of the facts on which the appeal is based, together with supporting affidavits or other documentary evidence. Failure to file notice within thirty (30) days shall constitute a waiver of any right to further appeal. The student has the right to consult the University Ombuds Office at any time, and the student may particularly want to utilize the Ombudsperson's services at this point in the review procedures.
2. A student may appeal the Registrar's decision by filing a written notice of appeal with the Office of the General Counsel within fifteen (15) days from the date of the Registrar's decision. Failure to file written notice of appeal of the Registrar's decision with the Office of the General Counsel within fifteen (15) days shall constitute a waiver of any right to further appeal.
3. A student may appeal the decision of the Office of the General Counsel within fifteen (15) days with the Office of the President. Failure to file written notice of appeal of the General Counsel's decision with the Office of the President within fifteen (15) days shall constitute a waiver of any right to further appeal. After the notice of appeal, the President or his designee shall review the student's appeal and render a final decision.

### Erroneous Classification

1. If an erroneous classification of non-residence occurs, an adjustment for the appropriate period and amount will be made.
2. If an erroneous classification of residence occurs, the student shall be reclassified as a non-resident student. If the cause of his or her incorrect classification shall be found to be due to any material concealment of facts or false statement made by the student before the time of the original classification, the student will be required to

pay all tuition and fees which would have been charged to him or her and also will be subject also to appropriate discipline in accordance with University Student Code of Conduct. If it is determined that there is no such concealment of facts by the student, fees shall be adjusted only for current and future semesters.

### Effective Dates of Residence Regulations

Amended statute as adopted on September 20, 2013, will be effective for the Winter Semester 2014.

# Financial Aid

## Office of Student Financial Aid (OSFA)

Welcome Center, 42 W. Warren Avenue  
P.O. Box 2340, Detroit, MI 48202  
Telephone: 313-577-2100, Fax: 313-577-6648  
<https://wayne.edu/financial-aid> (<https://wayne.edu/financial-aid/>)

The Office of Student Financial Aid (OSFA) provides need-based and non-need-based financial aid to help eligible students meet the expenses of their education. Financial aid is intended to supplement, not to replace, students' financial resources. Financial need is determined from the information that students submit on the Free Application for Federal Student Aid (FAFSA).

Information concerning scholarships (<https://wayne.edu/scholarships/>) is available online. Wayne State University offers a variety of university-wide scholarships that are awarded based on financial need, scholastic achievement, and/or leadership qualities. To apply for university-wide scholarships, current and admitted students can login to search and apply for scholarships (<https://wayne.scholarshipuniverse.com/public/>). WSU Scholarship Universe connects Wayne State University students to internal and vetted external scholarship opportunities. Note: Scholarships that have need as a criterion require submission of the FAFSA.

**Service Hours:** Walk-in financial aid assistance is provided in the lobby of the Welcome Center Monday through Friday, 9:00 a.m. to 5:00 p.m. You may also email [studentservice@wayne.edu](mailto:studentservice@wayne.edu) or call 313-577-2100.

The Office of Student Financial Aid will send email and notices to your WSU email account (<https://tech.wayne.edu/kb/communication-collaboration/wayne-connect/>). Information about your award and award requirements is available in the Financial Aid Portal (<http://studentss.prod.wayne.edu/StudentSelfService/ssb/financialAid/>) in Academica. More information about using Academica is available on our website (<https://wayne.edu/financial-aid/receiving/pipeline/>).

## Financial Aid Types

Financial aid at Wayne State University is awarded in the form of a 'package,' or combination of aid sources, and generally consists of four types: grants, scholarships, loans, and employment. The amount of aid a student may receive cannot exceed the estimated cost of attendance. The amount of need-based financial aid that a student may receive cannot exceed their financial need, which is based on the information provided on the FAFSA. Graduate students may be eligible for a need-based Federal Work-study award or non-need-based Federal Unsubsidized or Grad PLUS loan.

### Grants

Grants are gift assistance awarded on the basis of financial need and do not require repayment. The Free Application for Federal Student Aid (FAFSA) is required. Note: The Federal Pell Grant is limited to students who have not earned a bachelor's or professional degree.

### Scholarships

Scholarships are gift assistance awarded based on academic achievement or other special ability and do not require repayment. For some awards, financial need is a factor and a FAFSA is required.

### Loans

Loans are money that must be repaid at a future date, usually following graduation or when the student ceases to be enrolled on at least a half time basis. Federal loans require submission of the FAFSA. A graduate

student may qualify for a Federal Unsubsidized loan and may apply for a Federal Direct PLUS loan to assist with educational expenses.

## Federal Work-Study

Federal work-study is on- or off-campus part-time employment with eligible employers. Work-study is awarded based on financial need. Students interested in work-study should complete the annual FAFSA. The Work-Study Request Form available on our website. The Student Guide to On-Campus Employment, which explains the hiring process and the terms and conditions of employment is available from the Office of Career Services (<http://careerservices.wayne.edu/student-employment.php>).

## Free Application for Federal Student Aid (FAFSA)

**How and When to Apply for Financial Aid:** Each academic year, submit the Free Application for Federal Student Aid (FAFSA) (<https://studentaid.gov/h/apply-for-aid/fafsa/>) and include the WSU federal code, 002329. The U.S. Department of Education will electronically transmit the FAFSA data to the Office of Student Financial Aid.

**Help Completing the FAFSA:** Help completing the FAFSA is provided online throughout the application process. Help also is available by telephone from the Federal Student Aid Information Center: 1-800-4-FED-AID (1-800-433-3243) during regular business hours (Eastern Time), Monday through Friday.

## Application Deadlines

**Application Priority Date:** The application priority date for financial aid consideration at WSU is the date by which the FAFSA should be submitted to facilitate determination of student eligibility for financial aid before the beginning of the fall semester. The priority date is not a deadline. See our website (<https://wayne.edu/financial-aid/resources/dates/>) for current information.

The 2024-25 aid year includes the fall 2024, winter 2025 and spring/summer 2025 semesters.

- You can file the 2024-25 FAFSA starting, January 2024 through June 30, 2025.
- All students are encouraged to file the FAFSA early to be considered for all available funding options.

**Academic Calendar:** At WSU, the spring/summer semester is the third term of the school year. For example: The spring/summer semester 2024 is part of the 2023-24 school year; the spring/summer semester 2025 is part of the 2024-25 school year.

## Financial Need Determination

**FAFSA Submission Summary (FSS):** A summary of your completed FAFSA information. This replaces the Student Aid Report (SAR) that was used in previous years. Based on the FAFSA information, the FSS either states the student's Student Aid Index (SAI) or instructs the student to take additional action which will allow an SAI to be determined. The SAI is used in determining financial need. The FSS also indicates whether the financial aid application has been selected for the verification process.

**How Financial Need Is Determined:** To determine financial need, OSFA subtracts the student's student aid index (SAI) from the average cost of attendance (COA) for their program at Wayne State University. A negative SAI is counted as a zero in this formula. COA minus SAI equals financial need.

**Verification:** The process by which an educational institution confirms the accuracy of the data reported on an individual student's FAFSA is called verification. The federal processor selects the FAFSA applications for which the data submitted must be verified. A student whose application is selected for verification must provide documentation to confirm the information on the FAFSA.

**Note:** If an application is selected for verification, the student must complete the verification process before eligibility for financial aid can be confirmed, and before financial aid can be paid.

**The Cost of Attendance (COA):** The cost of attendance (COA), which is also called a budget, components include: tuition, fees, books and supplies, housing allowance (based on the living arrangements reported on the FAFSA) and miscellaneous expenses. If a loan is awarded, loan fees will be an included component. All students are initially assigned estimated tuition costs and estimated costs for books and supplies based on full-time enrollment status for their academic programs. Financial aid awards are offered based on the estimated budgets. At the time of disbursement, each student's financial aid award is adjusted based on current enrollment status (full-time, three-quarter time, or half-time).

The COA may be adjusted to include dependent care directly related to attendance at WSU; costs related to a disability; computer purchase for educational purposes; costs to obtain a first professional license; and an allowance for reasonable costs directly related to one's program of study.

Michigan Resident and Out-of-State Resident Cost of Attendance (<http://wayne.edu/financial-aid/resources/cost-of-attendance/>): Please access our website for detailed information concerning how student budgets are assigned and cost of attendance component amounts.

Current Tuition and Fees (<http://reg.wayne.edu/students/tuition.php>): Tuition and fees are subject to change by the WSU Board of Governors without notice.

Special Circumstances (<https://wayne.edu/financial-aid/forms/appeal/>): The Office of Student Financial Aid recognizes that students may have extenuating financial circumstances that the standard need analysis form (FAFSA) does not consider. Applicants may request a review of extenuating circumstances that they believe affect their financial aid eligibility by submitting a Special Circumstances Appeal Form.

## Eligibility and Conditions of Financial Aid

Students must be enrolled in an eligible degree- or certificate-granting program to receive financial aid funds. Enrollment must be at least half-time to be considered eligible for most types of aid.

**Non-degree programs** have aid limitations and not all programs are eligible for financial aid. OSFA can provide more information about non-degree programs, including a list of specific certificate programs that are ineligible for financial aid.

**Prerequisite coursework** aid eligibility is limited. Determination of aid eligibility requires submission of the Prerequisite Coursework Aid Request Form, which is available on our website.

## Repeat Coursework

Federal financial aid will pay for only one repeat registration in a course for which the student has previously earned credit with a passing grade. That is, students are only eligible to receive financial aid the first time the course is repeated.

## Calculating "Earned" versus "Unearned" Financial Aid

OSFA must follow federal regulations in determining the amount of "earned" versus "unearned" federal financial aid disbursed to a student who then leaves school without completing the semester. The refund percentage is determined by the student's effective date of withdrawal from all classes, which is the last recorded date of attendance.

A student who completes 60% or less of a semester will be considered to have "earned" the same percentage of financial aid as the percentage of the semester completed. The percentage will be calculated by dividing the completed number of days by the total number of days in the semester. The percentage of "unearned" aid will correspond to the percentage of the semester not completed. A student who completes more than 60% of a semester will be considered to have earned 100% of the financial aid disbursed for that semester and no return of federal financial aid will be calculated.

A student has not "earned" all of the financial aid received may be required to repay those funds.

### Students in the MD program

You are considered to have withdrawn from the MD program for Title IV purposes in the following instances:

- You do not complete all the days in the payment period or period of enrollment that you were scheduled to complete.
- If you stop attending a course that does not span the semester, we must have written notification at the time of the withdrawal that you will attend another course that begins in the same payment period no later than 45 days after the end of the course that you stopped attending.
- You take a leave of absence. The WSU School of Medicine has a formal policy regarding leave of absence. For financial aid purposes, **all leaves of absence will be treated as a withdrawal effective the first day of the leave and a return calculation of federal student aid will be performed.** A return calculation could result in having to repay all or a portion of your financial aid back to Wayne State University.

Detailed information is provided in the WSU Withdrawals and Return of Title IV Policy (<https://wayne.edu/financial-aid/receiving/cancellation/>).

## Enrollment Requirements for Federal Direct Loans

To receive a federal loan disbursement, a student's enrollment status must be at least half-time. Half-time enrollment status for graduate and professional school students varies by semester and professional school.

## Satisfactory Academic Progress (SAP)

Federal financial aid regulations require OSFA to apply reasonable standards for measuring whether a student is making progress toward a degree or certificate. The standards, which are called satisfactory academic progress (SAP), must be met for a student to remain eligible to receive financial aid. Academic progress is measured each semester.

WSU Satisfactory Academic Progress Standards are comprised of three components:

1. The cumulative grade point average of at least 3.0 is required at the graduate level. Students in the JD or Phar.D. program must have a GPA of 2.0 or higher. Students in the MD program must satisfactorily complete all course requirements and examinations.
2. The pace of progress toward the degree or certificate must be at least 67%, which is determined by dividing the cumulative number of credits completed by the cumulative number of credits attempted.
3. The maximum time frame for completing the degree or certificate, is 150% of the average published length in credits of the program.

Students in the MD program must complete all attempted coursework within seven years.

*Note:* Full-time or part-time enrollment is not a factor in determining the pace of progress or the time frame since the sole unit of measurement is credits.

### Financial aid warning status

If your SAP status is reviewed every semester and you are failing to make satisfactory academic progress, your financial aid eligibility will be reinstated for one semester. No SAP appeal is necessary. During the warning semester, you are expected to improve your academic standing and degree progress, to meet standards of SAP at the end of the semester. If you fail to achieve SAP at the end of the semester, you will be denied financial aid beginning the following semester. You may submit a SAP Appeal to request financial aid consideration.

**WSU Law School JD program:** JD student's status is reviewed annually, and warning status does not apply. If you are not meeting standards, you will be denied aid. You may appeal according to the guidelines available on our website.

**WSU School of Medicine MD program:** MD student's status is reviewed annually, and warning status does not apply. If you are not meeting standards, you will be denied aid. You may appeal according to the guidelines available on our website.

The WSU Satisfactory Academic Progress Policy is available **online**. Check your SAP status in Academics (<https://academics.aws.wayne.edu/>).

## Consequences of Withdrawing from Courses

A student's satisfactory academic progress (<https://wayne.edu/financial-aid/receiving/sap/>) may be affected if they withdraw from courses (some or all) during a semester. A student who does not comply with SAP standards may be denied financial aid for subsequent semesters. The university has specific instructions for **SAP appeals**.

A student who withdraws from all courses may be required to repay a portion of the financial aid received. Please see the section above titled Calculating "Earned" versus "Unearned" Financial Aid.

If a student's withdrawal from one or more courses results in less-than-half-time enrollment status, the student will not be eligible for new federal loan funds. At the end of the grace period on the loans received, repayment will begin. Detailed information about grace periods and loan repayment is available on the Federal Student Aid website. A student should contact their loan servicer to make payment arrangements or request a loan deferment or forbearance.

The amount in federal student loans that a student can receive has annual and aggregate limits. Students are strongly encouraged to consider these limits in developing their education plan.

The U.S. Department of Education's Office of Federal Student Aid (<https://studentaid.gov/>) governs the policies and procedures for loan repayments, deferment, forbearance, and limits.

## Financial Aid Disbursement

**Financial Aid Disbursement:** Financial aid (except work-study) is paid in two disbursements if the award is for the academic year (fall and winter semesters). Half of the award is paid in the fall semester and half is paid in the winter semester. If you are a student in the MD program your loan will be split evenly among the four MD semesters.

Financial aid recipients are expected to attend courses throughout the semester. Aid will not disburse after courses begin unless the

instructor confirms participation in courses. If participation in class is not confirmed, the amount of financial aid may be affected.

Financial aid funds are applied directly to institutional charges (tuition, fees, room and board). Any excess funds will be available within 14 days of the date the credit balance occurs or within 14 days of the first day of classes — whichever is later.

**Federal Work-Study Payments:** Work-study earnings are paid biweekly in the form of a paycheck. The department in which the student is employed submits a record of the hours worked to the Payroll Office, and the Payroll Office authorizes payments.

*Note:* Students cannot earn more than the amount of their work-study award. Spring/summer semester is separate from the fall and winter semesters. Unused funds from a fall and/or winter work-study award cannot be earned in the spring/summer semester.

**Enrollment Requirements for Federal Direct Loans:** A student must be enrolled at least half-time to receive a federal loan disbursement.



# Student Academic Success Services

## Counseling and Psychological Services (CAPS)

552 Student Center Building; 313-577-3398  
<https://caps.wayne.edu/>

Counseling and Psychological Services (CAPS) provides free and confidential mental health assessment, counseling, case management, and referrals to currently-registered Wayne State students, along with consultation and outreach to the Wayne State University community. CAPS promotes a culture of understanding and growth through professional collaboration among our dynamic staff of licensed professional counselors, psychologists, and social workers. CAPS is fully accredited by the International Association of Counseling Services.

*Service hours:* Monday - Friday 8:30 am to 5:00 pm. Visit the CAPS website for details.

*Eligibility:* All currently enrolled students are eligible for counseling evaluation to assess whether their needs can be addressed effectively via short-term counseling at CAPS or require more specialized or longer-term counseling at another facility. Faculty, staff, alumni, children, or spouses are not eligible.

*Crisis Services:* In the case of a non-life-threatening crisis, students, faculty, or staff can contact CAPS and indicate that a student needs immediate assistance. If assistance is needed during evening or weekend hours, contact the Wayne State University Police Department at 313-577-2222 or call the CAPS After Hours Crisis Line 313-577-9982. In the event of a life-threatening emergency at any time, contact the Wayne State Police Department.

## Student Disability Services (SDS)

1600 David Adamany Undergraduate Library; 313-577-1851;  
313-202-4216 (Videophone)  
<https://studentdisability.wayne.edu/>

Student Disability Services is the office at Wayne State University that determines eligibility and implements academic accommodations, services and support for students with disabilities pursuant to the Americans with Disabilities Act (ADA), the ADA Amendments Act of 2008, and Section 504 of the Vocational Rehabilitation Act of 1973. SDS is committed to teaching students to advocate for themselves in order to fulfill their academic goals. SDS also provides training and outreach throughout the university to ensure equal access to all university programs.

*Disability Determination:* In order to register for SDS services, students must self-identify by providing documentation of their disability. Students will meet with disability specialists to discuss appropriate and reasonable accommodations. Once accommodations are determined, students are guided through the process of providing faculty with their accommodation letters and securing appropriate services. Students receiving accommodations are held to the same academic standards as all other WSU students and are responsible for requesting services and following procedures in a timely manner.

*Academic Accommodations:* Accommodations and services are individualized and based upon the student's documentation. It is for this reason that students should ensure that they have sufficient documentation that supports the need for appropriate and reasonable accommodations. Some of the accommodations and services provided by SDS might include alternative testing, interpreter and CART reporting services, alternative text format, note-taking assistance, furniture

requests, use of assistive technology, and use of SDS exam/study rooms. Students registered with SDS are also eligible for pre-priority registration for classes. Through the SDS liaison program with University departments and programs, SDS ensures that members of the University community understand the types of support offered to enhance collaboration in providing accommodations.

*Assistive Technology:* SDS will work to secure alternative text formats and similar technologies for students and teaches students how to use the various assistive technologies. SDS exam/study rooms house CCTV magnification equipment, computers with software such as Zoomtext, JAWS, Kurzweil Educational Systems, Dragon Naturally Speaking and Inspiration. Students are also informed about free downloadable software programs for reading and recording.

*Community Resources:* SDS collaborates with various community agencies that assist students with disabilities at the university. Students are connected to agencies such as Michigan Rehabilitation Services and the Bureau of Services for Blind Persons.

## Career Services

1001 Faculty/Administration Building; 313-577-3390  
<https://careerservices.wayne.edu/>

Career Services provides support to students and alumni in defining career and employment goals and assists them in their search for employment opportunities. In addition to the following services, Career Services offers topical workshops, career events, and group and individual career/employment counseling. Career Services welcomes the opportunity to discuss customized services to meet individual needs.

*Career Development:* The main focus of this service is to help students explore career options, clarify their career goals, and link those goals to appropriate academic paths. Individual and group services are available.

*Cooperative Education, Internships, and Summer*

*Employment:* Comprehensive paid professional, career- and non-career related work experiences are available, including a wide variety of part- and full-time experiential learning situations. Orientation workshops are offered on an ongoing basis.

*On-campus Student Employment:* Students may work on-campus up to twenty hours per week as a Student Assistant or College Work-Study employee. Job openings may be viewed in-house or online via our open posting system.

*Professional Employment:* Graduating students and alumni may increase professional full-time employment opportunities through on-campus interviews, resume referral, career fairs, in-house and on-line job postings, along with a myriad of career-related support services.

## Testing, Evaluation, and Research Services

686 Student Center; 313-577-3400  
<https://testing.wayne.edu/>

### Testing

We provide:

- A secure, standardized, testing environment where students can demonstrate their academic skills for placement, course credit, or high stakes decisions.
- The opportunity for students to earn course credit in courses accepted by the transfer credit office through the College Level Examination Program (CLEP).



- Placement testing for students interested in meeting general education and other requirements targeted toward their personal skill level in Biology, Chemistry, English Composition and Mathematics.
- Outside exams: Graduate Record Exam (GRE), Testing for the Law School Admission Council (LSAC), Medical College Admission Test (MCAT), Miller Analogies Test (MAT), Test of English as a Foreign Language (TOEFL), Written and Oral exams for the American Council on the Teaching of Foreign Languages (ACTFL), and written exams for doctoral students in the College of Education.

## Evaluation

We collect student opinions about faculty teaching through Student Evaluation of Teaching (SET). We share SET reports with students, administrators and faculty members toward the goal of improving quality of teaching at the University.

We survey students and faculty regarding the quality of their education through

1. the Cooperative Institutional Research Program (CIRP) Freshman Survey,
2. National Survey of Student Engagement (NSSE) and
3. Faculty Survey of Student Engagement (FSSE).

## Research Services

We offer consulting on best practice in testing for faculty and academic staff. We offer machine scoring of exams, including tabulation of test scores and statistical output to help faculty improve their tests.

## Office of Military and Veterans Academic Excellence (OMVAE)

Suite 687 Student Center Building;  
313-577-9180; Fax: 313-577-5020  
<https://omvae.wayne.edu/>

This office assists veterans, active-duty service members, reservists, National Guard and eligible dependents/survivors in utilizing educational benefits. Specifically, students are aided in applying for Federal benefits outlined under Title 38, and Title 10, USC., including: the Montgomery GI Bill<sup>®</sup> (chapter 30), Vocational Rehabilitation (chapter 31), Post 9/11 GI Bill<sup>®</sup> (Chapter 33), Reserve Educational Assistance Program, the Reserve GI Bill<sup>®</sup> (chapter 1606), REAP (chapter 1607), and the Survivors'/ Dependents' Educational Assistance (chapter 35). All eligible students must officially request (<http://omvae.wayne.edu/va-certification.php>) to use their educational benefits each semester. GI Bill<sup>®</sup> is a registered trademark of the US Department of Veterans Affairs (VA). More information about education benefits offered by VA is available at the official US government website (<https://www.benefits.va.gov/gibill/>).

**Non-Degree Status:** Students must be in a degree program to receive benefits. Those not currently admitted to a degree program and enrolled in classes must verify to the OMVAE via an academic advisor (<http://advising.wayne.edu/makeappt.php>) the reason for enrollment (i.e., completing foundation courses for a master's-level program).

**Transfer Credits:** Wayne State University will give four transfer credits for veterans, reservists, National Guard, and active-duty service members for service in the US military. The University will require military discharge document DD-Form 214 (<http://www.dd214.us/>).

Wayne State University will accept up to twelve transfer credits from veterans upon receiving their Joint Service Transcript of military training. These credits are to be evaluated according to the 'Guide to the

Evaluation of Educational Experiences in the Armed Services,' published by the American Council on Education.

This policy shall be in effect for all veterans, reservists, National Guard, and active-duty service members currently enrolled Fall 2005 and thereafter.

**Late Tuition and Late Registration Fee Waiver:** Late fees, Partial Payment fees and Late Registration fees can be waived for all students currently receiving VA Educational Benefits. Contact OMVAE for assistance.

**Licensing/Certification Reimbursement:** In most instances, students receiving VA educational benefits (<http://www.gibill.va.gov>) are eligible for reimbursement ([https://www.benefits.va.gov/gibill/licensing\\_certification.asp](https://www.benefits.va.gov/gibill/licensing_certification.asp)) for licensing test fees.

**Tutorial Assistance** is also available as part of all benefit packages as noted above. Eligible recipients may receive \$100.00 per month, up to twelve months to help defray tutoring costs. Contact the OMVAE for further details. No charge to benefit entitlement is incurred for the first six months received of Tutorial Assistance ([https://www.benefits.va.gov/gibill/tutorial\\_assistance.asp](https://www.benefits.va.gov/gibill/tutorial_assistance.asp)).

**In-State Tuition Waiver:** Individuals on active duty in the US Military who are stationed in Michigan and their dependents are eligible for Michigan in-state tuition. Stationing orders and proof of relationship (for dependents) must be provided with the application.

Students utilizing Chapter 31 or Chapter 33 GI Bill<sup>®</sup> benefits will be granted a deferment of tuition and fees for the current enrollment period upon submission of a corresponding Certificate of Eligibility (or suitable documentation which demonstrates benefit eligibility). The deferment will be placed proportionally based on the student's percentage of eligibility.

Veterans and their dependents are eligible for Michigan in-state tuition. The term "veteran" means a citizen of the United States or a resident alien whose most recent separation from any branch of the armed forces of the United States was under conditions other than dishonorable after having served on active duty for 90 consecutive days or more by reason of disability incurred while serving on active duty.

Individuals who are members of the National Guard of any state, or who were separated from the National Guard of any state under conditions other than dishonorable, and their dependents are eligible for Michigan in-state tuition.

Without regard to the foregoing, any individual using educational assistance under either Chapter 30 (Montgomery GI Bill<sup>®</sup> – Active Duty Program), Chapter 33 (Post-9/11 GI Bill<sup>®</sup>), of title 38, United States Code, and/or the Marine Gunnery Sergeant John David Fry Scholarship (38 USC § 3311 (b)(9) who lives in the State of Michigan while attending Wayne State University (regardless of his/her formal state of residence) is eligible for Michigan in-state tuition.

**VA Work-study Program:** The VA work-study (<https://www.benefits.va.gov/gibill/workstudy.asp>) allowance is available to all students eligible for VA Educational Benefits. Those eligible who are at least a three-quarter-time student in a college degree program, or a vocational or professional program, can 'earn while they learn.' Pay for VA Work-study is the equal to the Federal minimum wage or your state minimum wage, whichever is greater.

Services performed under a VA work-study program must be related to VA work. Examples of acceptable work are:

- Processing VA paperwork at any university or college having a VA Office (e.g., you may be enrolled at WSU but work at Oakland or Macomb Community College VA Offices)
- Outreach services under VA supervision
- Work at VA medical facilities or National Cemetery System offices
- Work with the Veterans counselor at any of the MESC offices
- Work in the Education or Transition offices at local base
- Work at Department of Defense facilities related to education benefits under the GI Bill®.

**National Guard Students:** Please note that Wayne State does not currently participate in the Guard's Tuition Grant Program. However, if your branch provides Tuition Assistance and/or Tuition Reimbursement the OMVAE will provide assistance as necessary with regard to grade and tuition certifications to your unit.

**Reserve Officer Training Corps (ROTC):** Wayne State University offers an Army ROTC (<http://omvae.wayne.edu/rotc/>) program. Students interested in joining the Army ROTC program at Wayne State University should contact MSG Nicholas Lachance 734-647-3034.

**Recalled To Active Duty (Reservists / National Guard):** Students serving in the Selected Reserves or National Guard who are called up to Active Duty during a semester may request full reimbursement of tuition and fees. Students must file an *Exception to Enrollment Policy* form and submit a copy of their orders to OMVAE. Students called up active near the end of a semester are encouraged to consider requesting Incomplete grades for coursework.

**Early-Out Requests:** Potential Students on Active Duty requesting a verification of enrollment to be sent to their Commands must be admitted to Wayne State University and have registered for classes. Please contact the Graduate Admissions Office and the Registration Office for assistance. Once these conditions are met, the VA Certifying Official can complete an enrollment verification for active duty members seeking an 'early out' from military service. Hard copy proof of student's admittance and registration for classes is NOT required for the VA Certifying Official to complete the enrollment verification.

**Training Time Equivalencies:** For purposes of GI Bill® benefit use, the following tables identify the training time equivalencies for standard and non-standard enrollment periods.

#### Fall or Winter

##### Semester

Enrollment Status	Undergraduate	Graduate	Pharm.D.	J.D.
Full Time	12+ Credits	8+ Credits	8+ Credits	10+ Credits

#### Spring/

##### Summer

##### Semester

Enrollment Status	Undergraduate	Graduate	Pharm.D.	J.D.
Full Time	9+ Credits	2+ Credits	2+ Credits	5+ Credits

#### Spring

##### Semester

Enrollment Status	Undergraduate	Graduate	Pharm.D.	J.D.
Full Time	6+ Credits	2+ Credits	2+ Credits	5+ Credits

#### Summer Semester

Enrollment Status	Undergraduate	Graduate	Pharm.D.	J.D.
Full Time	6+ Credits	2+ Credits	2+ Credits	5+ Credits

#### School of Medicine

Enrollment Status	M.D. Program
Full Time	24+ Credits

#### Non-standard Fall or Winter Graduate Terms

Term Length	13-14 Weeks	11-12 Weeks	9-10 Weeks	7-8 Weeks	5-6 Weeks	3-4 Weeks	1-2 Weeks
Full Time	7+ Cr.	6+ Cr.	5+ Cr.	4 Cr.	3 Cr.	2 Cr.	1 Cr.

## Office of International Programs

4228 Faculty/Administration Building; Phone: 313-577-8968; Fax: 313-577-5666

Email: [oiip@wayne.edu](mailto:oiip@wayne.edu)

*Vice President for Academic Student Affairs and Global Engagement:* Ahmad Ezzeddine

*Assistant Vice President for International Partnerships:* Huajing Maske

*Director of Operations:* Rebecca Journigan

*Associate Director, Student Programs:* Fareed Shalhout

*Marketing Coordinator:* Carol Baldwin

*Project Coordinators:* Jessica Hoffmeyer, Catherine Franklin, Zane Harvey

*Coordinator of Faculty Engagement and Global Learning:* Nicole Coleman

*Fellowships Faculty Coordinator:* Kevin Deegan-Krause

<http://www.oiip.wayne.edu> (<http://www.oiip.wayne.edu/>)

The Office of International Programs (OIP) is responsible for coordinating the University's resources and expertise to support international education on and off campus, to expand the university's global presence, and to facilitate the engagement of students, faculty, and staff with its global agenda. It also connects the metropolitan Detroit community with other university constituencies, locally and abroad. OIP encompasses the followings programs and activities:

- Office of International Students and Scholars
- Study Abroad and Global Programs
- English Language Institute

#### Fellowships Initiative

The Fellowships Initiative offers services to help students gain a competitive edge in the application process and grow personally from the experience of applying to a nationally competitive fellowship. Typically, fellowships fund study, research, or teaching in the U.S. or abroad. These awards are competitive and are awarded to students who are energetic and high achieving, with the potential to make significant contributions for the public good. More information is available on the Office of International Programs website (<https://oiip.wayne.edu/fellowships/>).

## Office of International Students and Scholars (OISS)

416 Welcome Center; 313-577-3422; Fax: 313-577-2962

*Director:* Kelli Dixon

The mission of OISS is to support and enhance the educational, cultural, and social experiences of the more than 1200 international students and scholars at Wayne State University. OISS is the University's main point of contact for issues related to international students and scholars' immigration regulation compliance.

OISS staff advise students and scholars on immigration regulations and issues of cross-cultural adjustment; provide educational, cultural and social programs and activities, including a comprehensive orientation program and written materials designed to help arriving students and scholars achieve their educational and personal goals; assist University departments in the hiring of foreign national employees, consult and interact with University units, governmental organizations and other agencies.

## Academic Progress for International Students

Department of Homeland Security regulations require:

1. That F-1 and J-1 students maintain a full course of study and make normal academic progress toward program completion at the institution they have been authorized to attend.
2. Graduate students must successfully complete at least eight credits each semester (excluding continuing students who qualify for an annual vacation semester during Spring/Summer or have been granted an exception to full-time enrollment). Undergraduate students must successfully complete at least twelve credits each semester (excluding continuing students who qualify for an annual vacation semester during Spring/Summer or have been granted an exception for full-time enrollment).
3. Graduate Teaching Assistants and Graduate Research Assistants must successfully complete at least eight credits each semester (excluding students who qualify for a vacation semester during Spring/Summer or an approved annual vacation). If GTAs/GRAs need to take less than eight credits, they must complete the OISS Request for Exception to Full Time Enrollment form and obtain approval from OISS. Students should consult an OISS advisor for details on compliance with this and other requirements.

## New International Students and Scholars

New International Students and Scholars receive the OISS welcome booklet with their visa document (Form I-20 or DS 2019) before they leave their home country. The booklet provides information on a wide variety of important topics such as housing, health insurance, expenses, immigration status, local climate, and air transportation. New students and scholars from abroad must report to OISS as soon as they arrive and must participate in a comprehensive orientation program. This program is designed to meet immediate needs in terms of housing information and University registration procedures; introduce them to U.S. culture and the University's educational system; and provide information on banking, health insurance, safety, and immigration regulations. In addition, a number of social and recreational programs and activities are planned to assist students and scholars in making a smooth transition to their new environment.

## Non-Immigrant International Students

Upon arrival to campus when entering the US on an initial I-20, all non-immigrant international students must all non-immigrant international students must report to OISS to complete check-in procedures and have immigration documents reviewed, purchase mandatory health insurance (see below), and obtain an orientation schedule. Transferring F-1 students

from other U.S. institutions must have their previous school release their Student and Exchange Visitor Information System (SEVIS) record to Wayne State University and must complete transfer procedures as provided in the federal regulations within fifteen days of the first day of class. F-1 students must notify the OISS of any change in name, address, program (including changes in level and field of study), and full-time enrollment. OISS must provide this information to Immigration and Customs Enforcement (ICE) through the Student and Exchange Visitor Information System (SEVIS). J-1 exchange visitors, including students, may not make a change in level, field, or category without the advance approval of the Department of State, and may be precluded from change of visa status until a two-year home country residency requirement is met.

## Commuting Canadian Students

Canadian students (commuters) enrolled less than full time must obtain a part-time I-20 from OISS each semester they are enrolled and should consult with an OISS advisor to determine the impact of their status on future immigration benefits including the availability of practical training.

## International Faculty and Research Scholars

The University provides foreign professors and research scholars with opportunities to engage in research, teaching, consulting, and lecturing with colleagues at Wayne State; to participate actively in cross-cultural activities; and to share their experience as well as increase their knowledge about the United States, Wayne State University, and the metropolitan Detroit community. OISS provides centralized support services necessary to enable and assure the employability of such non-U.S. citizens within government regulations. Offers of employment to foreign nationals must be authorized by OISS, and only this Office may sign immigration forms and petitions related to employment on behalf of the University. All foreign national employees must complete USCIS Form I-9, 'Employment Eligibility Verification' and present evidence of their identity and employment eligibility at OISS before commencing employment at Wayne State University.

## Health Insurance (International Students and Scholars)

416 Welcome Center; 313-577-3422; Fax: 577-2962  
Health Insurance Advocate: 313-577-0724

International students and scholars, and their dependents holding F1/ F-2 status and J-1 exchange visitors and their dependents holding J-1/ J-2 status are required to comply with the health insurance requirements of the University. Commuting Canadian students may waive the health insurance requirement by providing proof of OHIP coverage prior to each semester of enrollment. The mandatory international insurance program is designed to provide international students, exchange visitors, and their eligible dependents with continuous insurance protection and access to quality affordable health care services. The University is mandated by federal law to terminate from its program all exchange visitors and their dependents who do not meet minimum insurance requirements. For additional information or to purchase health insurance please access the OISS website (<http://www.oiss.wayne.edu>) or contact the Health Insurance Advocate in OISS; telephone: 577-0724 or e-mail [oissmail@wayne.edu](mailto:oissmail@wayne.edu)

## Cross-Cultural Activities

The OISS provides cross-cultural activities in order to provide exposure to American society, culture, and institutions. Activities include: International Education Week, new international student welcome events,

and international coffee hours. Coffee hour provides opportunity for dialogue with and among international students and scholars, American students, and the WSU community. Other activities include monthly sessions on employment options, internships, cross cultural adjustment and more.

## English Language Institute (ELI)

351 Manoojian Hall, 313-577-2729

<http://www.Eli.wayne.edu> (<http://www.eli.wayne.edu/>)

As the only intensive English language program in the metropolitan Detroit area, the English Language Institute (ELI) has specialized in teaching academic preparation skills, English communication, and cultural orientation to non-native speakers of English from all over the world for more than forty years. The ELI is committed to assisting individuals at all levels to develop their communication skills in the shortest possible time by using the newest language-teaching methodology and the most up-to-date audio, video, and computer technology available. Small classes and highly trained instructors make it possible for students to improve their English rapidly and effectively.

### Programs

**Intensive Program:** For students interested in improving their academic skills in a relatively short period of time, the ELI offers up to twenty hours per week of instruction at varying levels from beginning to advanced. While beginning levels focus on basic communicative skills, advanced classes emphasize mastery of the academic skills needed to succeed in the university such as essay writing, note-taking, and presenting information to an audience.

In addition to attending class, ELI students are encouraged to participate in weekly extracurricular activities in order to become integrated into the English-speaking community. Each semester the ELI offers field trips around the metro-Detroit area, conversation partner practice with native speakers, and socio-cultural activities while at the same time encouraging students to take advantage of all university facilities and services.

**Graduate Teaching Assistant (GTA) Training and Testing:** All prospective GTAs whose native language is not English must pass the SPEAK® test, rated by ELI faculty, with a score of at least fifty (out of sixty) to be cleared for teaching. A score of forty-five allows a person to teach while enrolling in ELI 0520, a course taught by two ELI faculty members. The final exam, also rated by ELI faculty as well as a faculty member from the academic department, is a teaching demonstration in the GTA's field of study. The SPEAK® test is offered at various times throughout the academic year. ELI 0520 is offered fall and winter semesters.

ENG 5850 is a course supported by the Graduate School and taught by ELI faculty each semester.

## English Language Institute Courses (ELI)

The following courses, numbered 0100-0999, are not offered for degree credit. For registration in any of these courses students should contact the English Language Institute.

### ELI 0300 Intermediate Speaking and Listening Cr. 2

The focus of this course is to develop students' emerging academic listening and speaking skills. Students will apply listening and speaking strategies. They will also give short presentations. Emphasis will be on generating compound and complex sentences using simple academic vocabulary. Students will pronounce English sounds accurately and follow intonation and stress patterns appropriately. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### ELI 0310 Intermediate Writing and Grammar Cr. 2

The focus of this course is to produce well-developed paragraphs in a variety of rhetorical modes on academic topics. This course will culminate in an introduction to essay writing. Intermediate grammatical structures, such as complex sentences, adjective clauses, and the present perfect, will be introduced. Error-correction tasks, peer evaluations, and self-evaluations will develop self-editing skills. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### ELI 0325 Intermediate Reading and Vocabulary Cr. 2

The focus of this course is to increase students' vocabulary and comprehension of longer and more varied reading passages and to increase students' reading fluency and speed by reading multiple books from ELI library. In intensive reading activities, students will be to identify the topic, main ideas, and details in a passage as well as recognize the writers' point of view, purpose, and tone in simple academic texts when guided by questions. Students will also be able to understand the structure of a text with transition words and the relationship between the main points and the supporting details. The focus of the extensive reading activities will be on identifying overall meaning of texts and increasing reading speed. Class Readers will give the teacher the opportunity to help students acquire the art of extensive reading, to improve their skills, and to monitor their progress closely. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### ELI 0400 High-Intermediate Speaking and Listening Cr. 2

The focus of this course is to develop students' academic listening and speaking skills needed for successful extended academic discourse. Students will demonstrate detailed understanding of academic listening passages. Students will use speaking strategies for academic discussions and to summarize information. They will give speeches using visuals, transitions, and grammatically-correct sentences with academic vocabulary. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### ELI 0410 High-Intermediate Writing and Grammar Cr. 2

The focus of this course is to develop students' essay writing skills and improve accuracy in grammar, mechanics, and spelling. Essays will be produced in a variety of rhetorical modes on academic topics that include some authentic sources. Students will also be introduced to summarizing and citing authentic sources. Complex grammatical structures will be introduced. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### ELI 0425 High-Intermediate Reading and Vocabulary Cr. 2

The focus of this course is to increase students' academic vocabulary and comprehension of academic reading passages and to increase students' reading fluency and speed by reading multiple books from the ELI library. In intensive reading activities, students will identify the structure, purpose, and connection between ideas in academic texts by finding main ideas, topic sentences, and supporting details in a passage, and recognize the writer's point of view, purpose, and tone in academic texts. Students will use strategies to discern meaning of words from context. They will acquire knowledge of word forms and will use dictionary skills to build vocabulary. The focus of the extensive reading activities will be on identifying overall meaning of texts and increasing reading speed. Class Readers will give the teacher the opportunity to help the students acquire the art of extensive reading, to improve their skills, and to monitor their progress closely. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.



### **ELI 0500 Advanced Speaking and Listening Cr. 2**

The focus of this course is to develop students' academic listening and speaking skills needed for successful extended academic discourse. Students will use listening strategies to show detailed understanding of lengthy academic listening passages. They will apply speaking strategies to share information and communicate with automaticity. Concentration will be on consistently speaking intelligibly and fluently. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### **ELI 0510 Advanced Reading and Writing Cr. 2**

Students will develop critical thinking skills through reading, writing, and classroom discussion. Students will write well-developed five- to eight-paragraph essays and relate assigned readings to their own experience. Students will learn how to incorporate outside sources into their essays and use appropriate citations. Advanced grammatical structures will be reviewed and expanded as necessary. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in English Language Institute; enrollment is limited to English Language Institute level students.

### **ELI 0515 Research Skills Cr. 1**

The focus of this course is to introduce skills essential to conduct academic research at the university level. Students will learn how to search for and evaluate academic sources in the library and online databases as well as how to read, analyze, and use the information gathered. The course also focuses on paraphrasing and summarizing. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### **ELI 0520 English for Teaching Assistants Cr. 1**

American English language skills to improve teaching effectiveness of non-native speakers of English. Pronunciation, stress, intonation, speaking rate; oral presentation practice; cultural factors in U.S. university classroom. Not offered for degree credit. Offered Every Term.

**Repeatable for 4 Credits**

### **ELI 0535 Advanced Grammar Cr. 2**

The focus of this course is to master students' communicative competence, or their ability to communicate effectively and appropriately, in writing and speaking. Advanced grammar points will be studied and practiced in ways that simulate academic discussions, scenarios, and assignments. Students will engage in a variety of communicative activities that demand grammatical accuracy. Note: out-of-class work time (or homework) can be equivalent to or even more than in-class work time. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### **ELI 0699 Directed Study Cr. 1-4**

Meets the needs of English as a Second Language (ESL) students in their last stages of preparation for matriculation. Based on students' particular needs, instruction will be provided to strengthen various academic preparation skills, including listening and note-taking practice in an academic context, extensive and intensive reading, and expository and research paper writing. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in English Language Institute; enrollment is limited to English Language Institute level students.

**Repeatable for 8 Credits**

## **Study Abroad and Global Programs Office**

906 W. Warren Avenue; 131 Manoogian Hall; 313-577-3207

Director: Kelli Dixon

<http://www.Studyabroad.wayne.edu> (<http://www.studyabroad.wayne.edu/>)

Study Abroad and Global Programs coordinates international educational activities at Wayne State University. Key activities include:

1. the management of WSU faculty-led study abroad programs and exchange agreements;
2. the administration of the Hostelling International Travel Award for students to encourage international study, research and internship abroad initiatives;
3. the administration for the NSEP - David Boren Scholarship;
4. the administration of the U.S. Student Fulbright Program;
5. the coordination and support of internationally-themed events; and
6. the development and management of international outreach activities and off-campus programs including agreements between Wayne State University and universities outside the United States.

Study Abroad programs are offered in collaboration between academic departments and faculty of both U.S. and foreign institutions, in order to combine academic study with a cross-cultural learning experience in a foreign environment. A variety of program options have been developed to address the diverse needs of students. Programs vary in length, level, academic focus, teaching format, language requirements, cost, and degree of independence demanded of the participant.

The office provides a full range of support services to students on such issues as program selection, academic planning, registration, credit, financial aid, and cultural adjustment. In addition, program materials have been designed specifically to assist students in preparing for their study abroad experience. Books, brochures, catalogs on academic and travel/study programs in foreign countries are available at the Study Abroad Resource Center, including information on Wayne State's thirty-three study abroad programs and other programs sponsored by American and foreign institutions.

For a complete and current list of WSU Study Abroad programs, learning experiences, and services, please contact the Study Abroad and Global Programs Office (<http://studyabroad.wayne.edu>).

### **Arabic Language and Culture at the Lebanese American University, Beirut**

This program provides opportunities for WSU students to study Arabic language and culture abroad. During the summer, WSU students may take a variety of language and culture classes while living abroad in Lebanon.

### **Japan Center for Michigan Universities**

The Japan Center for Michigan Universities (JCMU) is a consortium consisting of the fifteen State-supported Michigan public universities, the Michigan Japan Foundation, and Shiga Prefecture. JCMU offers semester- and year-long study opportunities in Hikone, Japan.

The Center's academic program is designed for students interested in acquiring knowledge about Japanese language and culture, including those not majoring in Japanese studies. It provides semi-intensive Japanese language courses and several core courses on Japanese culture to Michigan and other American university students. Academic credit may be granted by a student's home institution upon successful completion of JCMU courses; independent study is also available. The program also features home-stays in a Japanese community, field trips, and participation in cultural events.

**Other International Opportunities:** Numerous short-term special international study programs for credit are available to Wayne State students.



**International Students** requiring information on study at Wayne State University should contact the Office of International Students and Scholars (<http://www.oiss.wayne.edu>).

### Resource Center

Books, brochures, catalogs and advising on travel/study programs in foreign countries are available at the Resource Center, including information on Wayne State sponsored study abroad programs and programs sponsored by U.S. and foreign institutions. Course credit is available on approval for many study abroad programs; credit approval usually must be obtained prior to entering a study abroad program.

### Honors College

The Irvin D. Reid Honors College has study abroad experiences; for information, see the Honors College section in the WSU Undergraduate Bulletin.

### Fulbright Grants and other grants for graduate study abroad

The U.S. Fulbright student program (<http://us.fulbrightonline.org/>) is designed to give recent B.S. and B.A. graduates, masters and doctoral candidates, and young professionals and artists opportunities for personal growth and international experience. Each year the Fulbright Program allows Americans to study or conduct research in over 100 nations. Application deadline depends on the specific program but generally it must be submitted to the campus Fulbright advisor by September of the year prior to the foreign study experience.

Fulbright-Hays Doctoral Dissertation Research Abroad Program (<http://eca.state.gov/fulbright/fulbright-programs/program-summaries/fulbright-hays-program/>): Provides grants to colleges and universities to fund individual doctoral students to conduct research in other countries in modern foreign languages and area studies for periods of 6 to 12 months. Proposals focusing on Western Europe are not eligible.

Information about other national fellowships and scholarships may be found here: <https://oip.wayne.edu/fellowships> (<https://oip.wayne.edu/fellowships/>)

## Educational Outreach

5057 Woodward Avenue, Suite 3101, Detroit MI 48202; Telephone: (313) 577-4682

Email: [educationaloutreach@wayne.edu](mailto:educationaloutreach@wayne.edu)

<http://www.educationaloutreach.wayne.edu> (<http://www.educationaloutreach.wayne.edu/>)

*Vice President for Academic Student Affairs and Global Engagement:* Ahmad Ezzeddine

*Sr. Director, Business Affairs:* Arthurine Turner

*Associate Director, Administrative Services:* Heather Howell

*Director of Operations:* Rebecca Journigan

*Director, Educational Outreach and Transfer Initiatives:* Michael Quattro

*Associate Director, Educational Outreach:* Stacy Jackson

*Program Manager, Schoolcraft Center:* Gail Stanford

*Program Coordinator:* Brandi Walthall-Johnson

*Associate Director, Executive and Professional Development:*

*Marketing Coordinator:* Carol Baldwin

Educational Outreach is principally responsible for Wayne State University's off-campus offerings including online programs and courses. This division administers academic off-campus course offerings and programs for most Schools and Colleges of the University; the University Summer Session; and the partnership degree programs at University centers located on community college campuses. Educational Outreach staff coordinate relationships with community colleges partners and

oversee transfer student recruitment and retention via the Transfer Student Success Center. Additionally, the division oversees credit and non-credit executive education, certificate, professional development and continuing education programs for the University.

The Division operates several instructional centers in the Detroit metropolitan area as well as in other selected locations in Michigan, and delivers distance learning and online instructional programs. Through these outreach efforts, WSU is able to serve and meet the educational needs of a diverse student audience: working adults who are unable to pursue traditional on-campus programs of study; persons who desire courses of instruction at or near their place of employment; and others who are simply taking courses to enrich their educational background or improve their technical skills.

## Dual Enrollment Cohort Programs

Educational Outreach coordinates dual enrollment cohort programs for eligible high school students in interested school districts. Dual enrollment cohort programs may be offered on site within the school district or at any of the Wayne State University campuses. For information regarding Dual Enrollment Cohort Programs, telephone: 313-577-1430.

## Visitor Program (Non-Credit)

Educational Outreach also administers the University's Visitor Program. Under this program, adults can attend a wide range of selected University courses, both on and off campus, provided classroom space is available. No grade or academic credit may be earned, and students may not be registered for courses taken for credit simultaneously with courses taken under the Visitor Program.

The Visitor Program allows any adult who is not currently enrolled in credit courses at Wayne State University to attend a wide range of University courses in a noncredit status. Visitor status students do not receive academic credit and do not receive acknowledgement on transcripts. Provided space is available and permission has been granted, adults may enroll as visitors in most of the courses listed in the Schedule of Classes.

It is not necessary to be formally admitted to the University to take advantage of the Visitor Program. Visitor status students do not submit written work or take examinations. Registration for both on-campus and off-campus classes takes place the first two weeks of classes and is processed by the Division of Educational Outreach, located on the main campus.

Students enrolled in the Visitor Program are assessed one-half of the undergraduate resident lower division credit hour rate for each credit hour plus a non-refundable Registration Fee equal to one-half of the regular Registration fee and the full per credit hour undergraduate Student Service Credit Hour Fee. Payment of tuition and fees are due at the time of registration. Tuition must be paid in full at the time of registration. Payment is accepted by money order, check, Discover, Master or Visa Card. Money orders or checks must be drawn from a United States bank and cannot be starter checks. Students may register in person or by calling: 313-577-4682.

## Travel Study

Sponsoring schools and colleges in the University offer travel study programs through the Division of Educational Outreach. Most programs occur in the spring/summer sessions; times and locales vary each year. Travel study refers to programs in the United States. Please refer to the Office of International Programs (<http://bulletins.wayne.edu/>)

undergraduate/general-information/international-programs/) for study abroad programs. Recent travel study programs include:

**College of Liberal Arts and Sciences:** Biological Sciences: marine lab at the Florida Keys; field studies at Fish Lake, Michigan

**College of Education:** Science Education: ecology courses at Higgins Lake, Michigan

**College of Fine, Performing and Communication Arts:** Fashion Merchandising: design in New York City

## Extension Centers

*Director, Educational Outreach and Transfer Initiatives:* Michael Quattro

*Associate Director, Educational Outreach:* Stacy Jackson

*Program Manager, Schoolcraft Center:* Gail Stanford

The Division of Educational Outreach operates several instructional centers in the Detroit metropolitan area as well as in other selected locations in Michigan. Through these outreach locations, the University is able to serve and meet the educational needs of a diverse student audience. The locations of the centers are listed below.

### SCHOOLCRAFT COLLEGE

39201 W. Seven Mile Road

Jeffress Center, Suite 320

Livonia, MI 48152

Telephone: 734-853-3450

Fax: 734-853-3446

Email: [schoolcraft@wayne.edu](mailto:schoolcraft@wayne.edu)

### UNIVERSITY CENTER AT MACOMB

44575 Garfield Road

Clinton Township, MI 48038

Telephone: 586-263-6700; 313-577-6261

Fax: 586-263-6120

Email: [macomb@wayne.edu](mailto:macomb@wayne.edu)

### ADVANCED TECHNOLOGY EDUCATION CENTER

14601 East 12 Mile Road

Warren, MI 48088

Telephone: 586-447-3905; Fax: 586-447-3907

Email: [atec@wayne.edu](mailto:atec@wayne.edu)

## Registration for Off-Campus Courses

Registration for off-campus academic courses is held during the regular registration periods for each semester. For specific registration information, telephone: 313-577-3541 or 313-577-4682.

Fees for credit classes are the regularly established fees of Wayne State University, which are published each semester in the University Schedule of Classes (<http://classschedule.wayne.edu/>). All fees are subject to change at any time without notice by action of the Board of Governors of the University.

## Non-Matriculant Advising

Persons who wish to enroll in credit courses offered through this division and who have NOT been formally admitted to the University are registered as non-matriculated students in the College of Liberal Arts and Sciences. Students are advised to consult the non-matriculant advisor as well as the specific degree program requirements cited in this bulletin, and are urged to process formal application and admission documents as soon as possible. Upon admission to a Wayne State school or college, credits earned in non-matriculant status may be applied toward degrees subject to the approval of the admitting school or college.

## Admission Requirements

Most credit courses offered through Educational Outreach are open to all students who are qualified by virtue of meeting the prerequisites for individual courses or, in cases where there are no prerequisites, on the basis of their own assessment of their aptitudes. Those individuals who have been formally admitted to Wayne State University for a degree or certificate program, or post-baccalaureate study, and who are in good academic standing, will have course credits and grades earned through extension recorded on their transcripts in the same manner as credits earned on campus. Guest students should consult with their home institution when formulating their registration plans and submit an application for guest admission (<http://admissions.wayne.edu/guest/requirements.php>).

## Programs Offered Through Educational Outreach

Educational Outreach offers entire curricula or selected courses applicable to many Wayne State University degrees and certificates at convenient times and places. Students should visit the Educational Outreach (<https://wayne.edu/educationaloutreach/programs/>) website for more details about complete degree programs offered at various extension centers.

## Transfer Student Success Center

*Director, Educational Outreach and Transfer Initiatives:* Michael Quattro

*Manager:* Ranae Hamama

*Advisers:* Nicole Saez and Kaleigh Webber

*Telephone:* 313-577-2487

*Email:* [transfer@wayne.edu](mailto:transfer@wayne.edu)

The Transfer Student Success Center (TSSC) is a hub for transfer students to obtain the help they need to successfully complete their degree at Wayne State University. The TSSC is designed to help those transferring from a community college or other four-year institution navigate the administrative and academic units of the university and ensure a timely and successful completion of their degree.

The TSSC provides direct service to students, community college staff, and WSU departments.

Direct service to students includes support with:

- Transfer credit evaluation
- Academic advising
- Student organizations
- Engaging students with the larger Wayne State community
- Providing opportunities for prospective students to visit campus

Direct service to community college staff includes:

- Information about Transfer Plans and transferring of credit
- Development of articulation agreements
- Hosting/coordinating staff and faculty visits to WSU
- Providing counselors/advisors and other staff with current/updated WSU information

Direct service to WSU departments includes:

- Facilitating and coordinating the development of articulation agreements
- Acting as a resource and clearinghouse for information on transfer students
- Participating in and leading development of events and activities for transfer students

## Executive and Professional Development Programs (Non-Credit)

*Interim Associate Director:* Kim White-Jenkins

*Project Manager:* Abby Cheatham

*Telephone:* 313-577-4665

<http://www.ExecEd.wayne.edu> (<http://www.ExecEd.wayne.edu/>)

Executive and Professional Development (EPD) provides proven practical solutions to business challenges through executive education, business training and consulting. Offering a unique blend of expertise and flexible design, EPD moves beyond off-the-shelf, pre-packaged education, training and consulting 'services' by applying problem-solving strategies to assess and meet the needs of its clients. EPD is committed to providing customized, fully integrated, in-depth programs to address specific organizational needs and improve individual and organizational capabilities and performance. The EPD portfolio includes:

### Business Training and Executive Education

EPD offers programs that respond to problems currently facing business, government and industry. Programs are offered in a variety of formats and deliver the strategies, tools, and knowledge needed to succeed in today's changing business environment. EPD mobilizes the resources of WSU to serve the specific and unique needs of the community by offering customized degree and non-degree programs, be they an onsite MBA program offered for a specific company, an Engineering Management Master program offered for a group of engineering executives, or a master of social work offered at one of the university's extension sites.

EPD provides a blended training approach by using a variety of alternative delivery methods including on-site facilitated sessions, video-conferencing, online training and computer-based programs.

### Certificate Programs

EPD responds to industry's demand for a more comprehensive approach to continuing education by offering certificate programs that encompass several current management and business issues. These multiple-session programs offer participants the opportunity for higher mastery and competency in a particular subject area and can be customized to meet each organization's specific needs.

### On-Site Consulting Services

In conjunction with training, EPD's expert staff provides consulting services in a variety of areas including training and design development, leadership and organizational development, succession planning, business process improvement, strategic planning, and executive coaching.

### Procurement Technical Assistance Center

The Procurement Technical Assistance Center (PTAC) works with qualified businesses in the Detroit area to prepare them to bid for government contracts. PTAC's goal is to provide small business owners with a competitive edge in selling to the public sector by educating them about opportunities, and offering marketing and technical assistance. Recently, PTAC services resulted in awarded contracts totaling more than \$5 million.

For further information on any Executive and Professional Development services or activities, call: 313-577-4665.

## Campus Life

### Dean of Students Office

301 Student Center; 313-577-1010

<https://doso.wayne.edu/>

The Dean of Students Office provides services and affords opportunities to enhance student life and campus activities. The Office coordinates major campus student activities and events, including Orientation Part 2 (O2), New Student Convocation and Festifall, Student Organizations Day, Homecoming, and the Finals Week Late Night Breakfast.

The office coordinates the campus calendar of student activities, community service programs; advises fraternities and sororities; and promotes student involvement in co-curricular life at Wayne State and Detroit, including the Campus Activities Team program board. The office also coordinates the Warrior Pride program focused on school spirit, and the Warrior Zone athletic events student section. The University Student Conduct Officer is housed in the Dean of Students Office and the office also coordinates the Student Care Report process

The Dean of Students serves as the Deputy Coordinator for Title IX and the Student Life Wellness Coordinator resides in the Dean of Students Office and focuses on sexual violence prevention education, substance abuse prevention education, and digital citizenship education.

### Student Organizations

There are over 400 recognized student organizations including such diverse categories as academic/professional, social action, political, sororities/fraternities, honoraries, ethnic and religious groups, as well as student governments. Student organizations use the Dean of Students Office to process their event planning and all students use the Dean of Students Office to learn about getting involved in campus life. The Office staff also assists students who want to organize new student groups. The staff also coordinates various campus publications including the online newsletter Get Involved at Wayne. Student organizations can apply to the Student Activities Funding Board for funds to present events, programs, and activities on-campus.

The official student newspaper is the South End (<http://www.thesouthend.wayne.edu>).

### Parent and Family Services

The Dean of Students Office coordinates Wayne State's Parent and Family Services. Through this office, parents and family members receive the twice monthly parent and family newsletter and have services available to them to help them help their students be successful, including the parents helpline: 1-877-WSU-PARENT. The office may be e-mailed at: [parents@wayne.edu](mailto:parents@wayne.edu).

### Student Senate

382 Student Center

<https://studentsenate.wayne.edu/>

The Student Senate is the recognized student government of Wayne State University. It consists of twenty-eight members, fourteen members at large elected in a University-wide election, and fourteen appointed members, one student representative appointed by the Office of Housing and Residential Life, and one representative appointed by the Associate Vice President for Educational Outreach to represent the extension centers. The Student Senate has an official advisory responsibility in policy formation for the governing of student activities at Wayne State. The Student Senate is advised by the Dean of Students Office.

## Office of Housing and Residential Life

582 Student Center; 313-577-2116  
<https://housing.wayne.edu/>

Housing and Residential Life at Wayne State fosters student learning and success through engaging residents in an intentional living-learning community. Supported by safe, comfortable and convenient residence hall, apartment and dining environments, residents grow in self-awareness and cross-cultural understanding as they practice social and group development as members of a diverse group of Wayne State learners.

Facilities and programs administered by this office are located just steps away from classrooms, libraries, the Student Center, and the Recreation and Fitness Center and combine the convenience and activity of the campus with the energy and pace of downtown urban living.

## Parking: Faculty, Staff, and Visitor

42 W. Warren, Suite 257, Welcome Center; 313-577-2273  
<https://parking.wayne.edu>

The Parking and Transportation Services department has the responsibility to provide well-maintained, safe parking facilities and transportation for employees, students and visitors. The present parking system is comprised of 8 structures and 25 surface lots. Parking and Transportation Services provides parking services to students, staff, and visitors of Wayne State University. Parking Services is a self-supporting auxiliary that is not funded by state taxes or student tuition. Parking operations, maintenance, and development expenses are funded by revenue generated from the sale of parking services.

## Campus Health Center

5285 Anthony Wayne Drive; 313-577-5041  
<https://health.wayne.edu/>

The Campus Health Center provides comprehensive health care services for students, including physical examinations, family planning, illness visits, and immunizations (including flu, meningitis, hepatitis B, etc.). Visits are by appointment, but walk-ins are accepted for students experiencing an illness. Counseling referral services are also available. All currently enrolled students receive one free office visit per semester. Additional visits are billed to student's health insurance with most health care plans accepted. Students without insurance have reduced fees based on a sliding scale and ability to pay for additional office visits per semester.

## Police and Public Safety Services

6050 Cass; 313-577-2222  
<https://police.wayne.edu/>

The Wayne State University Police Department patrols and services the University including the city streets, businesses, and private residences within and between the various campus areas. The Department, to the extent that resources allow, also patrols and provides other police services to the neighborhoods and businesses in the area surrounding the University.

Police service is provided twenty-four hours a day, seven days a week. All officers have, at minimum, a bachelor's degree. They are commissioned as Detroit Police Officers, with full police authority on and off campus, after training at a State-certified Police Academy. Any matter requiring the services of a police officer can be reported at any hour of the day or night.

- Blue Light System — Emergency Telephones (7-2222): The University has installed outdoor emergency telephones throughout the campus. These emergency telephones are identified by bright blue lights.
- Emergencies (313-577-2222): All emergencies should be reported immediately, i.e.: all crimes, missing/stolen property, automobile accidents, suspicious persons, injured persons, vandalism, break-ins or burglaries.
- Accidents (313-577-2222): Ambulatory patients will be transported, by officers, to either Detroit Receiving Hospital or the University Health Center. The Police Department does not provide ambulance service but utilizes the Detroit Fire Department Emergency Medical Service to handle other than minor injuries.
- Fire or Other Extreme Hazards (313-577-2222): Emergencies such as fire, smoke, explosions, broken gas or water mains, severe electrical hazards, etc., should be reported.
- Crime Prevention Section (313-577-6064): The Police Department's Crime Prevention Section provides a number of crime prevention services, including personal safety seminars, crime prevention programs, and services. Examples of services provided include:
  - Security Services
  - Street Smarts seminars
  - Operation Identification
  - Alcohol Awareness
  - Rape Aggression Defense Training
- The Crime Prevention Section also publishes monthly 'CampusWatch' articles. Email inquiries may be made to: [campuswatch@wayne.edu](mailto:campuswatch@wayne.edu).

## Athletics, Intramurals and Recreation

**Matthaei Facility:** 126 Matthaei Building; 313-577-4295

**Intramural Sports:** Mort Harris Recreation and Fitness Center; 313-577-2348

**Intercollegiate Athletics:** 101 Matthaei Building; 313-577-4280  
<http://wsuathletics.com>. (<http://wsuathletics.com/>)

Wayne State University has a rich athletic tradition dating back to the fall of 1917 and recently celebrated 100 years of singular outreach and academic success. The first Detroit Junior College athletic event (precursor of Wayne State University) was a basketball game against the Detroit College of Law on January 19, 1918. Since then WSU student-athletes have captured numerous honors, including national championships awarded by the NCAA and conference championships. In the past 16 years, 406 WSU student-athletes have been recognized as All-American. In the 106-year history, 750 students have been so recognized. Over seventy-eight percent (78.32%) of the 400-plus student-athletes currently involved in competitive athletics have a 3.00 or better cumulative grade point average with every team having a GPA of at least 3.15 or better. According to the latest federally mandated report, WSU student-athletes Academic Success Rate is seventy-eight percent (78%). The athletic department provides competitive opportunities in the following sports: baseball, men's and women's basketball, men's and women's cross country, men's and women's fencing, football, men's and women's golf, softball, men's and women's swimming/diving, men's and women's tennis, volleyball, and women's indoor/outdoor track. During the 2022-23 academic year, 11 out of 18 programs competed in NCAA championships. In 2012, women's swimming and diving won the NCAA National Championship joining 10 other programs to be so honored. WSU Athletics has finished in the top 10% nationally each of the last three years in the annual NACDA Cup in Division II, which ranks schools based on competitive success.

The University competes at the NCAA Division II level, while the men's and women's fencing programs participate in the NCAA Collegiate



National Championship. WSU student-athletes have served nearly 100,000 community service hours over the last 11 years.

Many new facilities adorn the WSU athletic campus, including the 3,000-seat Wayne State Fieldhouse (shared with the Detroit Pistons G-League franchise Motor City Cruise).

The Harwell Museum which contains numerous exhibits which pay tribute to Ernie's marriage to Lulu, audio and video of Harwell's signature calls and moments and the controversial Jose Feliciano national anthem during the 1968 World Series. Harwell Field has a replica Fenway Park outfield fence, Major League size dugouts and through an arrangement with the Detroit Historical Society, the left field scoreboard from the former Tiger Stadium is attached to the base of the left field wall.

The Doris J. & Donald L. Duchene, Sr. Athletic Facility has 35,000 square feet of space with a maximum ceiling height of 35 feet. Enclosed are four tennis courts, a sprint track (60 yards), locker rooms for the men's and women's tennis, and baseball squads along with six offices for coaches and staff.

The nearly 12,000 square foot, state-of-the-art Athletic Performance Center was completed and opened in May of 2018 and gives student-athletes access to 24 work stations.

The softball facility was completed in three phases with the complex paid entirely by private revenue sources. On Nov. 12, 2016, the field was named Gary L. Bryce Field in honor of the long-time head coach with the installation of a new scoreboard. Previous upgrades included a locker room, offices, training room, batting and pitching cages, and outdoor bullpens.

The University offers a wide and varied program of recreational and intramural activities. The Matthaei Complex, and the surrounding athletic campus on 43 acres of land, located on the west end of campus, offers a myriad of drop-in activity areas that include courts and fields for basketball, football, jogging, racquetball, soccer, squash, tennis, and volleyball, a weight training/exercise room, and swimming facilities. Use of these facilities is free with a current University ID or with a membership through the Mort Harris Recreation and Fitness Center. The Doris J. & Donald L. Duchene, Sr. Athletic Facility features 35,000 square feet of usable space, four tennis courts and a sprint track. Rental information (<http://rfc.wayne.edu/multipurpose/>) for this facility is available online.

**Ticket and schedule information** is available on the Athletics website (<https://wsuathletics.com/>) or by calling 313-577-4069. All men's basketball and football games are broadcast on the Warrior Radio Network at WDTK-AM 1400 and FM 101.5 and are also available for free through WDTK the Patriot (<https://patriotdetroit.com/>). All home athletic contests for football, volleyball, both basketballs, baseball and softball are streamed online through an agreement with FloSports. Students are admitted free to all University-controlled WSU athletic events with a One Card.

## Matthaei Building

MMatthaei is normally open from 7:00 a.m. to 8:00 p.m., Monday through Friday; and is closed to recreation on Saturday and Sunday, during the fall and winter semesters. During the spring/summer semester the building is open from 7:00 a.m. to 7:00 p.m., Monday through Friday. Outdoor tennis courts and track are available during posted hours. A facility schedule is published monthly. Operational hours are subject to change, and not all areas of the complex will be always available, due to scheduled classes, intramural activities, and varsity athletics. All lap swim updates will be added to the monthly recreation schedule, available online or hard copy at the Matthaei. For charges and additional facility information, visit the Matthaei Shop in the Matthaei Building; or call 313-577-4295.

## Mort Harris Recreation and Fitness Center

The Mort Harris Recreation and Fitness Center is open from 5:30 a.m. to 11:00 p.m., Monday through Friday; and 10:00 a.m. to 7:00 p.m. on Saturday and Sunday, during the fall, winter and spring/summer semesters. Operational hours are subject to change, and not all areas of the complex will be available for open recreation at all times, due to scheduled group fitness classes, intramural activities, club sport activities, and varsity athletics. Locker and towel services are available for all students and members with a current OneCard. For charges and additional facility information, please visit the Mort Harris Recreation and Fitness Center (<http://rfc.wayne.edu/>) website or call 313-577-2348.

## Group Fitness Classes (non-credit)

These classes include a variety of programming, conducted by trained, certified and experienced instructors. Class options include yoga, cycling, Zumba, High Intensity, and more. Classes are in person and virtual. Checkout a full class schedule and our virtual options (<https://rfc.wayne.edu/fitness/group-classes/>).

**Open Recreation:** The fitness areas, multi-purpose courts, walking track and climbing wall offer opportunities for unstructured play and participation. Basketball, volleyball, and a variety of equipment and areas for working out, stretching, and socializing are also available.

**Intramural Sports Programs:** Open and co-rec intramural sports leagues are available for all currently enrolled WSU students as well as WSU faculty and staff members of the facility. Leagues and tournaments are available in a variety of sports, including basketball, volleyball, dodgeball, flag football, soccer, cricket and more.

**Club Sports:** The Mort Harris RFC is also the home for all Club Sports. Students interested in starting a particular club sport or joining a current team, are invited to consult our website to view the registration process and to become familiar with GPA, credit load, and insurance guidelines. All WSU Club Sports are fully funded by the participating students themselves. Current clubs include men's and women's soccer, men's and women's volleyball, figure skating, tennis, and more.

**Fitness and Wellness Programs:** Fitness assessments, personal training, and group fitness programs for every level of fitness are available to all students and members. All students and members have a free consultation included with their membership every year.

**Climbing Wall:** The Mort Harris RFC climbing wall features both bouldering and ropes routes to climb. Our routes are changed weekly and are graded on difficulty. We have all the equipment you need to climb or you can bring your own. Our wall is designed to accommodate climbers of all skill level even if you have never climbed before. Our staff is ready to get you going. Day and year passes are available.

**Adventure Trips:** The Mort Harris Recreation and Fitness Center offers a variety of outdoor excursions for novices to seasoned adventures. Trips include but are not limited to camping, hiking, ice climbing, rock climbing, and more.

**Team Building:** The high ropes course is designed to foster interpersonal and intra-personal growth in a fun and challenging environment. Your student organization, department, corporation or group will climb up 30 feet and traverse through 15 different elements that focus on teamwork and interdependency. Groups will learn to communicate effectively, listen to each member, recognize individual strengths and utilize collaborative efforts.

**Student Center Administration:** Student Center Administration (313-577-4585) is located in the lower level of the Student Center. This office schedules rooms and audio-visual equipment available for meetings, seminars, conferences and special programs. Bake sale,



literature and vendor tables as well as Community Arts and St. Andrews reservations are also provided.

Student Center Administration provides the following services for a fee: duplicating service, SMART and DDOT bus passes, fax service, and State Hall locker rentals. In addition, Student Center Graphics, University Lost and Found, and the campus bulletin board posting service are located here.

**Student Center Graphics:** (313-577-3730): Student Center Graphics is a student operated design and print shop. They provide design services and large format printing for the campus community and outside clients. SCG also provides items such as banners, posters, logo designs and consultations for a fee.

**Religious Organizations:** Various religious denominations have offices on the sixth and seventh floors of the Student Center. Programs and personal and spiritual counseling are available from various denominations. A reflection room is available on the 3rd floor of the Student Center.

## Computing and Information Technology Division (C&IT)

Office: 5925 Woodward Ave.

Tel.: 313-577-4722; Fax: 313-577-5500

Associate Vice President and Chief Information Officer: Rob Thompson  
<https://tech.wayne.edu/>

Computing and Information Technology (C&IT) provides IT services and resources that support and enhance Wayne State University's teaching, learning, research, and administrative activities. C&IT's primary goal is to provide technology services that enable our students, faculty, and staff to be successful at WSU. C&IT employees strive to provide excellent customer service, respond to the changing needs of the University community, and make it easy and convenient for everyone to use technology at Wayne State. Functional C&IT organization charts are available on our website (<https://computing.wayne.edu/about/org-charts.php>).

### AccessID

Everyone at Wayne State receives a unique identification code (AccessID) consisting of two letters and four numbers, for example: xy1234. The AccessID and password are key to accessing many University online systems; the Access ID can be found on the One- Card; passwords are assigned with initial email communications in the admissions application process.

### Email and Communication Tools

**Wayne Connect:** The University's Wayne Connect system is a campus-wide method of communication. It is powered by Microsoft and features email, calendars, online storage, mobile apps, and more.

Broadcast Messaging (Emergency Alerts) (<https://broadcast.wayne.edu/>): This University-wide service delivers emergency alerts and other significant messages to faculty, students, and staff. Recipients can register their cell phones to get emergency alerts, grades, and other important information via text messages.

### Mobile Apps

**Wayne State Mobile App** offers students, faculty, staff, and alumni an easy way to access University information like email, calendar, parking availability, class schedules, campus maps, OneCard balances, and more. Apps are available for free download on Android and iOS devices.

### Academic IT Services

Canvas (<https://tech.wayne.edu/kb/academic-services/>) is Wayne State's online learning management system. Students can take quizzes, upload assignments, participate in message boards and more. Free mobile apps for teachers and students are available.

Computer Labs (<https://library.wayne.edu/services/computing/labs/>): The University libraries have both open and restricted-access computing areas, with more than 600 computers and a variety of applications. Additionally, many Schools, Colleges, and academic departments provide special-purpose computers and software for their students and faculty.

Grid Computing (<https://tech.wayne.edu/hpc/>): WSU researchers with projects requiring high performance computing can use Wayne State University's scalable, Grid-enabled computing system.

## Administrative IT Services

**Academica** is the primary online means to securely register for classes, apply for financial aid, pay tuition, and more.

**Internet Access** (<https://tech.wayne.edu/kb/internet-networks/wired-wireless-networks/>): WSU's wireless networks offer high-speed Internet access within campus buildings including the residence halls. We recommend connecting to WSU-SECURE whenever possible.

**Research Networks: Internet2 and MiLR** (<https://tech.wayne.edu/kb/academic-services/grid-computing/266731/>): Wayne State's membership in the Internet2 advanced networking consortium offers researchers countless opportunities for participation and collaboration. The Internet2 Network addresses researchers' bandwidth-intensive requirements, such as: collaborative applications, distributed research experiments, and grid-based data analysis.

**Software Purchases and Discounts** (<https://tech.wayne.edu/software-hardware/discounted-software/>): The C&IT Help Desk provides free and discounted software to current students, faculty and staff for academic, departmental and personal use.

**Computer Security** (<https://tech.wayne.edu/kb/security/>): Students can rely on C&IT to protect the confidentiality, integrity, and availability of information on WSU computer systems, but security is everyone's responsibility.

**Help Desk** (<https://tech.wayne.edu/helpdesk/>): The C&IT Help Desk is Wayne State's campus technology headquarters - a one-stop shop for all your tech support needs. Call, email, or live chat for one-on-one help with any of Wayne State's IT systems, like email, Canvas, or Academica.

**Qualtrics Online Survey Software** (<https://tech.wayne.edu/kb/academic-services/qualtrics/>): The Qualtrics Research Suite is a user-friendly, feature rich, web-based survey tool that allows users to build, distribute, and analyze online surveys, collaborate in real-time, and export data in multiple formats. All Wayne State students have access to a free account for this service.

## University Libraries and Archives

Office: 3100 David Adamany Undergraduate Library  
Tel.: 313-577-4023; Fax: 313-577-5525  
[library.wayne.edu](http://library.wayne.edu) (<https://library.wayne.edu/>)

The University Libraries support the education, research and service missions of the University and its communities through comprehensive, high-quality resources, services and programs. The libraries are leaders in providing accurate and timely information to Wayne State University as well as the metropolitan Detroit area and Michigan. Scholarly materials in the University Libraries offer total more than three million volumes, over 56,000 journal titles and a broad range of electronic resources, including electronic journals and over 800,000 e-books, all available through the Libraries' website.

The Library System includes the David Adamany Undergraduate Library, the Arthur Neef Law Library, the Purdy/Kresge Library, the Vera P. Shiffman Medical Library and its Learning Resource Center at the Eugene Applebaum College of Pharmacy and Health Sciences, and the Walter P. Reuther Library of Labor and Urban Affairs and University Archives. The School of Information Sciences and the Detroit Area Library Network (DALNET) are also under the Library System's charge.

The University Libraries offer in-person reference consultations, research support, interlibrary loan, circulation and course reserve services, document delivery and 24/7 online research support. The latest information technologies provide state-of-the-art access to instructional and research materials. The libraries provide silent and collaborative study spaces.

### David Adamany Undergraduate Library

The David Adamany Undergraduate Library (<https://library.wayne.edu/>) (UGL) is designed to enhance the learning experience of undergraduate students by offering open spaces for collaboration and silent study as well as hundreds of computers for student use. The library features instructional labs, open spaces with flexible furniture and technology, collaborative study rooms that can be reserved online, course reserves and the Tech Bunker, a technologically-rich immersive learning space that invites users to develop, design, dream and discover. The UGL also houses the Writing Center, Student Academic Success Services, the Irvin D. Reid Honors College, the Humanities Commons and other student-facing services throughout the building.

### Purdy/Kresge Library

The Purdy/Kresge Library (<https://library.wayne.edu/>) supports the research and instructional needs of faculty, graduate students and upper-level undergraduates. The library provides access to over sixty 60 computers as well as ample study space in a traditional library atmosphere.

The Purdy/Kresge Library houses a book collection of over 1.5 million volumes, an extensive microform collection, a large document collection and a number of special collections including the Leonard Simons Collection of rare Michigan history texts, the Arthur L. Johnson Endowment collection, and the Ramsey Collection of Children's Literature. This library is also the home of the Teaching Commons, a collaborative effort of the Libraries, the Office for Teaching and Learning, and Computing & Information Technology, which assists faculty and instructors in designing and developing instructional experiences for the classroom and online teaching environments.

## Arthur Neef Law Library

Located at the north end of the University's main campus, Wayne State University's Arthur Neef Law Library (<https://library.wayne.edu/neef/>) offers researchers a comprehensive legal research center. Its collection of more than 620,000 print and microform equivalent volumes, plus an expansive collection of e-books, databases and other digital resources makes it a leading legal research facility in the State of Michigan. The Law Library is also a depository for U.S. government publications and for the records and briefs filed with the Michigan Supreme Court.

## Shiffman Medical Library and Learning Resources Centers

The Shiffman Medical Library (<https://library.wayne.edu/shiffman/>) supports the research, education and clinical and public health care information needs for the University, major hospitals within the Detroit Medical Center, and unaffiliated health care providers and trainees throughout Michigan. The library maintains access to all the major health sciences, bio-scientific and consumer health databases; a core collection of journals dating to the mid-19th century; and books in print and electronically reproduced. Health information learning programs and informatics workshops, listed on the Shiffman website, are open to all members of the University community. The Learning Resources Center focuses on the daily information and computing needs of students of the Applebaum College.

## Walter P. Reuther Library of Labor and Urban Affairs and University Archives

The Walter P. Reuther Library (<https://www.reuther.wayne.edu>) has an international reputation as the largest labor archives in the world and additionally holds significant collections relating to social and urban affairs in the metro Detroit area. It collects and preserves records of the American labor movement, related social, economic, and political reform groups, and twentieth century urban America. The archival collections held in the Reuther Library cover a variety of topics, organizations and individuals. In all, the Reuther Library has more than 95 million documents, 20,000 books, monographs, union publications and proceedings, 2 million photographic images; and 20,000 audio and moving image recordings. Due to issues of format, size, and security, the collection stacks are not open to the public and researchers work with these materials in the Reuther reading room during established hours of business.

The Reuther Library has become the official depository for the inactive files of several labor unions and organizations, including the United Auto Workers, the American Federation of Teachers, the National Association of Letter Carriers, The Newspaper Guild, the United Farm Workers, the Service Employees International Union, the American Federation of State, County and Municipal Employees, the Air Line Pilots Association, the Association of Flight Attendants, the Industrial Workers of the World, the Society of Women Engineers, and many state and local organizations. Records have also been received from urban and civil rights groups as the Citizens Crusade Against Poverty, the Michigan Chapter of the American Civil Liberties Union, the Detroit Branch of the National Association for the Advancement of Colored People, the United Community Services of Detroit, United Way for Southeastern Michigan, and New Detroit, Inc. A unique portion of the holdings is a labor journal and newspaper collection, which has nearly 1,600 current and non-current titles dating from the late 1800s to the present. Many individuals who played leading roles in labor and urban affairs have also placed their papers in the Reuther Library.

The Reuther Library also houses the Wayne State University Archives which provides historical information about WSU and its predecessor

institutions that date to 1868. In addition to collecting the University's historical records, the WSU Archives holds the papers of presidents and administrative leaders, the papers of selected faculty members, and the papers of student and professional organizations that document the development of the University and higher education in Michigan. The WSU Archives also collects all publications created by and pertaining to the University, including the student newspaper from 1917 to present, as well as departmental newsletters.

## Centers and Institutes

### Barbara Ann Karmanos Cancer Institute

4100 John R Street, 2nd Floor  
313-576-8670 or 1-800-527-6277  
<https://karmanos.org>

The Barbara Ann Karmanos Cancer Institute is one of forty-five National Cancer Institute-designated comprehensive cancer centers in the country and has been serving the Detroit area for more than sixty years. The Karmanos Cancer Institute operates the Karmanos Cancer Center, an independent cancer hospital, and manages the comprehensive cancer center core grant from the National Cancer Institute, in affiliation with Wayne State University. The faculty of the graduate program in cancer biology are drawn from a number of academic departments at Wayne State University and are Scientific Members of the Cancer Center. Students are trained in the biology of cancer at the molecular, cellular, and tissue levels, as well as in translational research and population studies of cancer. The focus of the training experience can be varied to suit individual student needs. It leads to the Doctor of Philosophy degree in Cancer Biology.

The Barbara Ann Karmanos Cancer Institute is a premier, nationally-recognized cancer research, treatment, education, and outreach center. It is also home to one of the eighteen national registries of the SEER (Surveillance, Epidemiology, End Result) programs. The current research programs are as follows:

- Molecular Imaging
- Molecular Therapeutics
- Population Sciences and Disparities
- Tumor Biology and Microenvironment

### Center for Automotive Research

*Director:* Naïem Henein, Ph.D.  
2121 Engineering  
313-577-3887  
<https://automotiveresearch.wayne.edu/>

The Center for Automotive Research (CAR) was established in 1980 to advance, promote and support research and academic courses in areas of interest to the automotive industry. Faculty and graduate students from the College of Engineering and local industry participate in the research programs conducted at the Center.

Current research areas include the auto-ignition, combustion and emission characteristics of petroleum, alternate and renewable fuels in spark-ignition and compression-ignition engines, under different operating conditions. The research thrust areas are auto-ignition and combustion in engines, conventional, alternate and renewable fuels, cold startability at low ambient temperatures, sensors, diagnostics, electronic controls, engine dynamics, friction and wear, and simulations and mathematical modeling.

The research in the Center combines theoretical and experimental investigations. Theoretical research deals with fundamental processes of thermodynamics, heat transfer, mass transfer, and combustion kinetics, applied to combustion engines. CFD and chemical kinetics codes are used to determine the flow in the combustion chamber, the development of the auto-ignition and combustion processes, the radicals concentrations and the formation of the different engine-out emission species. In addition to the cold room and optical engine test cells, experimental research is conducted under warmed up and loaded engine conditions in six dynamometer test cells equipped with

electric dynamometers, flow-meters, pressure transducers, charge amplifiers, shaft encoders, gas analysis equipment, particulate mass and characterization equipment, gas chromatograph, FTIR spectrometer, mass spectrometer, fast response flame ionization detectors, fast-response NO detectors, and fast response CO and CO<sub>2</sub> detectors and high speed data acquisition systems.

### Center for Excellence and Equity in Mathematics

*Director:* Steven Kahn, Ph.D.  
1309 Faculty Administration Building  
313-577-2558  
<http://clas.wayne.edu/ceem/>

The Center for Excellence and Equity in Mathematics, in the College of Liberal Arts and Sciences, is a research and educational center with a two-fold mission: to find ways to significantly improve the quality of K-12 and introductory college-level mathematics instruction across the United States; and, by using mathematics as a tool, to provide students from inner cities and underrepresented minority groups with the kinds of educational and lifetime opportunities that should be available to all students.

The Center currently operates five core programs: the WSU Math Corps, an outreach program serving Detroit middle and high school students; the WSU Middle and High School Math Network, which provides day to day instructional and/or operational resources to Detroit area middle and high school math departments; the Math Corps Learning Community at WSU, a University support and retention program for Math Corps "kids" now attending WSU; and the Emerging Scholars Program (ESP), a WSU honors-level calculus and pre-calculus program; and the Rising Scholars Program (RSP), serving WSU students at the developmental level.

### Center for Latino/a and Latin American Studies

*Director:* Jorge L. Chinea, Ph.D.  
3324 Faculty/Admin. Bldg.  
313-577-4378  
<https://las.wayne.edu/>

The Center for Latino/a and Latin American Studies is a multi-service unit engaged in teaching, research, and service. The Center plays an important role in the urban mission of Wayne State University and involves four components:

1. The Center hosts two learning communities: the CBS Scholars Program and the College-to-Career Program. The first one recruits students into the University, facilitates their transition between high school and college, and promotes increased retention. The second program supports students through completion of their degrees and beyond, especially in the areas of career development and graduate school preparedness. It also offers courses and related educational activities for students interested in Latino and Latin American Studies.
2. It promotes research on issues relevant to the Latino/a community, especially in the urban and workplace environment; and Latin American cultural studies and current issues.
3. It creates and fosters the interaction and exchange of personnel and resources between the University and the Latino/a community; and it serves as a source of expertise on Latino issues to the larger metropolitan community.
4. As an advocate for the awareness and advancement of Latino/a issues within the University, the Center contributes to the

University's continuing efforts to create a richer multicultural campus environment.

## Center for Molecular Medicine and Genetics

*Director:* Lawrence I. Grossman, Ph.D.  
3127 Scott Hall, 540 E. Canfield  
313-577-5323  
<https://genetics.wayne.edu/>

The Center for Molecular Medicine and Genetics conducts and fosters interdisciplinary health-related research and research training in three focal areas of molecular biology:

1. Structure and function of macromolecules: chemical synthesis and analytical characterization of nucleic acids and protein products with scientific and commercial potential; and genetically-engineered products with new or improved functions.
2. Structure and function of human, viral, mitochondrial and other genomes; DNA sequences of genes and their regulatory regions; genetic and physical maps of simple and complex genomes, with emphasis on those important in human health and disease.
3. Development and characterization of animal models of human disease: use of transgenic and knockout technologies in vertebrate and invertebrate model organisms to elucidate the etiology and pathophysiology of major diseases.

The research and research training activities promoted by the Center involve its own research faculty and faculty from at least twelve departments throughout the University. The Center is supported by the University's Research Excellence and Economic Development Fund.

## Center for Peace and Conflict Studies

*Director:* Pontus Leander, Ph.D.  
2320 Faculty/Administration Building  
313-577-3453  
<https://cpcs.wayne.edu/>

On November 20, 1965 the Center for Teaching about War and Peace opened its doors under the leadership of Director Russell Broadhead and a committee of distinguished faculty members. The mission then was to provide interdisciplinary, University wide, academic programs in the field of domestic and international conflict and peace issues. In 1987 the WSU Board of Governors, building upon this rich heritage, created The Center for Peace and Conflict Studies.

The mission of the Center for Peace and Conflict Studies is to develop and implement projects, programs, curricula, research, and publications in areas of scholarship related to international and domestic peace, war, social justice, arms control, globalization, multicultural awareness and constructive conflict resolution. The Center addresses this mission in three ways. CPCS supports undergraduate and graduate student excellence through its academic programs. CPCS staff and students engage in scholarly research initiatives on aspects of domestic and international conflict management. CPCS provides community outreach programs that emphasize: conflict resolution, development of intercultural understanding, and enhance local knowledge of global affairs.

## Center for Social Work Research

5447 Woodward  
313-577-4439  
<https://socialwork.wayne.edu/research> (<https://socialwork.wayne.edu/research/>)

Chartered in 2008, the goals of the Center for Social Work Practice and Policy Research are to:

1. conduct research that advances social work practice and policy in settings that range from urban neighborhoods to international contexts;
2. develop relationships with the purpose of identifying and expanding research opportunities and promoting Center sustainability; and
3. foster a commitment to the dissemination of findings that inform social work practice and expand the body of social work knowledge.

The Center fosters a culture for research within the School of Social Work by creating an infrastructure of resources for faculty scholarship and research including pre- and post-award grant support. In addition, the Center facilitates opportunities for faculty and staff engagement with community partners. The Center strongly believes in using interactive processes where researchers, practitioners and policy makers can find new ways to work together, generate innovative ideas, share knowledge and solve problems. Through our Strategic Partners Project and other Center activities, the School of Social Work continues to demonstrate its commitment to the Detroit area, researching and developing real solutions for real world problems. To this end our faculty and staff are engaged in evaluation research, grant writing, instrument development and other research-related service projects with community agencies.

Translating research and disseminating social work knowledge among practitioners is critical. The Center implements a variety of strategies to synthesize recent research findings into serviceable formats for practitioners including an enhanced web page, policy and practice briefs, and researcher-practitioner dialogue meetings. Learning communities are also provided for students interested in applying research methods to social work contexts.

## Center for the Study of Citizenship

*Director:* Saeed Khan  
3157 Faculty/Admin. Bldg.  
313-577-2593  
<http://www.clas.wayne.edu/citizenship> (<http://www.clas.wayne.edu/citizenship/>)

The Center for the Study of Citizenship at Wayne State University promotes research and intellectual exchange about citizenship among a global community of scholars; students; political, community, and business leaders; and the general public. The Center fosters research in the emerging interdisciplinary field of citizenship studies locally, nationally, and internationally. In particular, the Center encourages analysis of the relationship between citizens and the political, social, economic, and cultural communities of which they are a part. Toward these ends, the Center hosts the leading international conference in citizenship studies; publishes a book series, *Citizenship Studies*, in collaboration with the Wayne State University Press; sponsors a discussion network with over 2000 subscribers from over 30 countries; hosts an annual civic festival in September; and sponsors public programs about citizenship.

## Center for Urban Studies

*Director:* Lyke Thompson, Ph.D.  
*Managing Director:* Charo Hulleza, M.P.A.  
5700 Cass Avenue, Room 2207 Academic/Administration Building  
313-577-2208  
<http://www.cus.wayne.edu> (<http://www.cus.wayne.edu/>)

The Center for Urban Studies improves understanding of and provides innovative responses to urban challenges and opportunities. The Center



conducts and disseminates research, develops policies and programs, and provides training, capacity-building, and technical assistance. The Center participates in defining and influencing local, regional, State, and urban policy. The Center's current initiatives have a real, substantial and lasting impact on Detroit's challenges across a number of areas ranging from crime reduction to healthy homes. Committed to serving Detroit and its metropolitan area, the Center exemplifies Wayne State's urban research and service mission. The Center employs a highly trained multi-disciplinary team consisting of social science Ph.D. and master's-level researchers, as well as WSU graduate and undergraduate students.

## Center to Advance Palliative-Care Excellence (CAPEWAYNE)

4201 St. Antoine, Suite 5C-UHC  
313-576-3997  
<http://www.capewayne.med.wayne.edu> (<http://www.capewayne.med.wayne.edu/>)

CAPEWAYNE is an inter-disciplinary academic center bringing together scholars, educators, researchers and clinicians dedicated to improving the quality of end-of-life care. The main focus areas of this center are education, research and clinical practice, all of which permeated by the field of humanities.

**Education:** The Center offers an end-of-life curriculum for students, trainees and clinicians across disciplines and levels of training. A major undertaking of the Center is to offer a highly regarded regional conference on Palliative Care annually.

**Research:** The Center gathers researchers who have a shared interest in the conduct of collaborative, interdisciplinary interdepartmental research.

**Clinical Practice:** The Center provides resources to clinicians across disciplines and settings that practice palliative care, through a paradigm of sharing and ensuring optimization of clinical care in our community.

## Cohn-Haddow Center for Judaic Studies

*Director:* Howard Lupovitch, Ph.D.  
2311 Faculty/Admin. Bldg., 656 W. Kirby  
313-577-2679  
<https://judaicstudies.wayne.edu/>

Established in 1988 as a cooperative venture between Wayne State University and the Jewish Foundation of Metropolitan Detroit/United Jewish Foundation, the Cohn-Haddow Center embodies the fruitful relationship that has long linked the University to the metropolitan Jewish community. As such, it is a model for universities and Jewish communities in a dynamic urban setting. The Cohn-Haddow Center serves as a resource to the University and to the larger community in Jewish studies and related areas. It sponsors a broad array of programs and activities related to several of the University's wide-ranging missions. From biannual international conferences to smaller symposia, incidental lectures, and broadly-defined cultural events, the Cohn-Haddow Center has introduced the University and community to some of the world's most distinguished academics and eminent writers, poets, artists and musicians.

## C.S. Mott Center for Human Growth and Development

*Director:* Gil G. Mor, M.D., Ph.D.  
275 E. Hancock  
313-577-1337  
<https://mott.med.wayne.edu/>

The C.S. Mott Center for Human Growth and Development, a basic, research facility housing over 24,000 sq. ft. of laboratory space, is located on the medical campus of Wayne State University School of Medicine.

Initially occupied in 1973, the building has been totally renovated through a 5-phase reconstruction project spanning the years of 2001-2008. In addition to individual Ob/Gyn investigators' laboratories/offices and animal facilities, the renovated building now also houses the research laboratories of the Perinatology Research Branch (PRB) of the NICHD, the Implantation Laboratory of the Reproductive Biology and Medicine Branch, NICHD Intramural Research Division, the Wayne State University Genomics Facility, a Bioinformatics Center and a Systems Biology section. It also contains one of the Ob/Gyn Department's Clinical Research areas.

## Damon J. Keith Center for Civil Rights

*Director:* Peter J. Hammer, J.D., Ph.D.  
471 W. Palmer St.  
313-577-3620  
<https://law.wayne.edu/keith-center/>

Located within Wayne State University's Law School, the Damon J. Keith Center for Civil Rights addresses the civil rights needs of southeast Michigan and beyond. The Keith Center's mission is to promote the educational, economic and political power of underrepresented communities in urban settings.

Our communities need institutions that call attention to today's civil rights challenges and that nurture social conscience. The Keith Center strives to be one such institution: a hub for civil rights teaching, research and action, and a place that fuels the next generation of civil rights leaders.

At the Keith Center, stakeholders gather to analyze policy, law students teach a civil rights curriculum to high school students, and leaders dive into the equity issues of the day, such as tax foreclosures, water shutoffs and police-community relations. We welcome the public for lectures by civil rights icons, we support community-based organizations, and we publish scholarship about how the law and social justice impact one another.

## Developmental Disabilities Institute

*Director:* Sharon Milberger, Sc.D.  
Leonard Simons Building  
4809 Woodward Avenue, Suite 268  
313-577-2654 or 888-978-4334  
<https://ddi.wayne.edu/>

The Developmental Disabilities Institute is one of a national network of over sixty University Affiliated Programs, nationally and in U.S. territories. The Institute's mission is to contribute to the development of inclusive communities, which enhance the quality of life of people with disabilities and their families through a culturally-sensitive statewide program of interdisciplinary education, community support and services, and research and dissemination of information.

Staff and faculty engage in technical assistance, training, and research programs throughout Michigan via collaborative efforts with schools, community agencies, community colleges, and other Universities. Over 10,000 individuals with disabilities benefit from these activities annually. The Institute offers a wide range of opportunities for students and faculty to engage in state-of-the-art community-based research, education, and technical assistance.

The Institute develops activities and projects based on needs of persons with disabilities and the communities in which they live and work. The Community Advisory Council, composed of representatives of twenty-five key statewide organizations, meets bi-annually to provide information and assistance to Institute staff and faculty in establishing priorities and evaluating activities.

## Douglas A. Fraser Center for Workplace Issues

249 Walter P. Reuther Library, 5401 Cass Ave.  
313-577-2191  
<https://labor.wayne.edu>

The Douglas A. Fraser Center for Workplace Issues is a core part of Labor@Wayne. It was chartered by the University Board of Governors in 1998 to honor Douglas Fraser, former president of the United Automobile Workers (UAW). The Center has been endowed by major gifts from the UAW, General Motors Corporation, Chrysler Corporation, and Ford Motor Company, and generous gifts from many other organizations and individuals, including the United Steelworkers of American. The mission of the Fraser Center is to generate knowledge and information about best practices in the workplace through effective union representation. The Center is guided by the external and internal advisory Boards of Labor@Wayne. It supports research through the Fraser Fellows, Fraser Scholars, Fraser Paper Series, and Fraser Workshop activities. It sponsors the annual Labor Leaders on Labor Forum which honors nationally prominent leaders for their contributions to working people and families. The Fraser Center also convenes numerous conferences and events to bring academics, labor leaders, business leaders, and policymakers together to discuss important workplace and public policy topics. It focuses on manufacturing, healthcare, and the public sector. The Fraser Center supports various topical White Papers on key issues such as employee engagement through labor-management joint initiatives.

## Humanities Center

*Director:* Jaime Goodrich, Ph.D.  
2226 Faculty/Administration Building; 656 W. Kirby; 313-577-5471  
<https://humanities.wayne.edu/>

The mission of the Humanities Center is to nurture interdisciplinary, transdisciplinary and intradisciplinary work in the humanities and the arts through competitions, conferences, discussion groups and other programs for Wayne State's humanities and arts faculty and students, and for visiting scholars and artists. The Center promotes excellence in research and creative endeavors through rigorous peer review of proposals submitted to it for funding. By sponsoring programs that involve community participants, the Center supports the University's urban mission. Through its various programs, the Center brings humanists of diverse talents and interests together for conversation and collaboration, and fosters innovation and creativity across the humanistic disciplines.

The Humanities Center provides funding support to both faculty members and students. Two of the Center's most prominent faculty programs are the Marilyn Williamson Endowed Distinguished Faculty Fellowship (MWEDF) and an annual themed Faculty Fellowship Competition. The Center awards either one or two Williamson fellowships a year, each worth \$20,000, depending on the funds available in the budget. Other faculty award programs include an annual themed the Faculty Fellowship Competition with between eight and ten recipients awarded up to \$6,000 each. Prominent student programs are the Doctoral Dissertation Fellowship and the Graduate Travel program. The Doctoral Dissertation Fellow will receive \$15,000 plus health care coverage if it is requested. Up to three smaller awards of \$500 may be made at the

discretion of the Center to applicants for the award. The Graduate Travel program encourages graduate students in the humanities and the arts to present their research or artistic work at national conferences and exhibitions by offering up to \$300 in travel assistance to applicants. Please check the Humanities Center Web site for additional programs that provide funding opportunities for faculty.

## Institute of Environmental Health Sciences

*Director:* Melissa Runge-Morris, M.D.  
Integrative Biosciences Center, 6135 Woodward Ave.  
313-577-6590  
<https://iehs.wayne.edu/>

The Institute of Environmental Health Sciences (IEHS) is the originator of the Center for Urban Responses to Environmental Stressors (CURES). IEHS is a core of research scientists who use state-of-the-art technologies to identify the central mechanisms that lead to environmentally-linked disease.

CURES is a diverse team of scientists, clinicians, public health professionals, educators and community leaders working together to build a healthy living and working environment in the City of Detroit. Located in the heart of the "motor city" and situated on the Wayne State University urban campus, the CURES motto is "Gateway to a Healthy Detroit."

## Institute of Gerontology

*Director:* Peter Lichtenberg, Ph.D., A.B.P.P.  
87 E. Ferry St., 226 Knapp Bldg.  
313-664-2600  
<https://iog.wayne.edu>

The Institute of Gerontology was created in 1965 by the Wayne State University Board of Governors in response to a mandate by the State of Michigan.

The Institute of Gerontology strives to contribute relevant research and education devoted to enhancing the quality of life of older people, especially those who reside in metropolitan Detroit and the State of Michigan. The interdisciplinary team of faculty partner with academic colleagues, trainees, community organizations, and citizens to better understand aging and health. It works to promote the integration of gerontology into the broader research, teaching, and service activities of Wayne State University, and employs analytical and conceptual advances in the understanding of aging and related processes, with specific attention focused on health and health disparities in our urban environment.

## Labor Studies Center

*Director:* Elizabeth Faue, Ph.D.  
249 Walter P. Reuther Library, 5401 Cass Ave.  
313-577-2191  
<https://labor.wayne.edu>

The Labor Studies Center is a comprehensive labor education center committed to strengthening the capacity of organized labor to represent the needs and interests of workers, while at the same time strengthening the University's interdisciplinary research and teaching on labor and labor relations issues. The Center's primary areas of research and practice include: training and technical assistance to unions on labor relations and workplace issues; an undergraduate labor studies major and internship program; interventions to increase the organizational

effectiveness of unions; the development and diffusion of constructive labor-management relations practices, particularly in the public sector; the formation and institutionalization of labor-community coalitions; and the impact of lean production systems on workers and labor relations practice in the North American auto industry.

## Merrill Palmer Skillman Institute

*Director:* Alissa Huth-Bocks, Ph.D.

71 East Ferry Ave.

313-664-2500

<https://mpsi.wayne.edu/>

The Merrill-Palmer Skillman Institute is an interdisciplinary research institute focusing on urban children and families. It has a long and distinguished history as a research and educational institution, serving as a pioneer in the field of child development and early education. Since it became a part of Wayne State University in 1982, the Institute has encouraged collaborations among faculty from many departments within the University.

The Institute emphasizes research, research training and community engagement and service in the areas of children's health and development. Current research strengths range from pre-natal exposures and child development, infant mental health, cognitive development of high risk infants as well as adolescent health and development. The service programs of the Institute are an outgrowth of its research mission. MPSI operates one of the nation's oldest preschools. Community outreach and engagement through MPSI's Healthier Urban Families Program includes training of mental health workers who serve very young children in the care of public and non-profit agencies; consultation to education and child care organizations; workshops for teachers, parents and the public; and the annual Metropolitan Detroit Teen Conference.

**Infant Mental Health:** Dual-title degree programs in infant mental health are offered in conjunction with degrees sponsored by the Schools of Nursing, Education and Social Work. For curricula pertaining to these programs, please refer to the individual program and school/college sections in this bulletin.

# Mike Ilitch School of Business

Dean: Virginia Kleist

The Mike Ilitch School of Business is a professional school concerned with the theory and practice of business administration. The primary objectives of the School are to provide a contemporary education of high quality for business administration students, to develop new knowledge through research and to encourage application of its findings. To this end, in addition to their instructional services, the faculty has been a continuing source of notable scholarly publications and it is a special strength of the School that this research faculty teaches both undergraduate as well as graduate courses.

This School has a tradition of instructional programs exemplifying high standards for both faculty and students as is acknowledged by the accreditation of the AACSB International (the Association to Advance Collegiate Schools of Business) for both the baccalaureate and master's degree programs. The School provides relevant, comprehensive business education through programs that serve recent high school graduates as well as more mature student populations. The student body is racially and ethnically diverse, commuting, and often working and raising families. To meet the needs of these students, the School schedules classes on campus, at the University Oakland Center and online.

The Mike Ilitch School of Business also recognizes its obligation to community service. As part of an urban university, the School makes a special commitment to foster basic and applied research that will benefit business enterprises. Equally important is the dedication to excellence in the instructional programs that create and support the business leadership that is critical to the continuing revitalization of southeastern Michigan.

## Mission Statement

Our mission is to prepare our students for challenging and rewarding careers, advance the boundaries of scholarly and practitioner knowledge, and enhance the economic vitality of the city of Detroit, the state of Michigan and beyond through our programs, research and community engagement.

## Undergraduate Program

The undergraduate program begins with students acquiring an educational foundation in several introductory business courses and in the basic sciences and the humanities. During the third and fourth years, students follow a program designed to provide professional education in the major. Students may select majors in accounting, finance, global supply chain management, management, information systems management, and marketing. Degrees of Bachelor of Science in Business Administration or Bachelor of Arts in Business Administration are awarded; post-bachelor certificates in accounting and information systems management are also offered. For additional undergraduate information, consult the Wayne State University Undergraduate Bulletin.

## Graduate Program

The program leading to the Master of Business Administration degree educates graduate students for professional careers in business administration. The program requires a minimum of thirty-six graduate credits beyond the pre-professional foundation requirements. Graduate courses are offered at both on- and off-campus locations during the late afternoon and evening, and online. It is possible for students to complete their M.B.A. online, onsite, or through a combination of online and onsite courses.

The program leading to the Master of Science in Accounting is designed to prepare individuals for careers in accounting in public accounting firms, private industries, financial institutions, and government and nonprofit organizations. The program requires a minimum of thirty credits beyond the foundation requirements. Courses are offered in the late afternoon and evening.

The program leading to the Graduate Certificate in Business is designed to equip non-business degree holders with relevant business knowledge pertaining to the daily operations of business in corporate, non-profit and entrepreneurial settings. The program requires a minimum of thirteen credits. Courses are offered in the late afternoon and evening or online.

The Doctor of Philosophy in Business Administration prepares persons interested in careers in research and university teaching. The core goals for Ph.D. students are the creation of new knowledge through research and excellence in teaching. This program offers concentrations in finance, management, and marketing.

## Accreditation

Mike Ilitch School of Business programs are accredited as follows:

*School:* Accreditation Council of AACSB International: The Association to Advance Collegiate Schools of Business. (AACSB)

# Academic Regulations for the Mike Ilitch School of Business

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations (p. 24) of this bulletin. The following additions and amendments pertain to the Mike Ilitch School of Business. Graduate students are advised that, in addition to the policies, procedures, and rules specified by the Mike Ilitch School of Business, other regulations and requirements of Wayne State University's Graduate School may apply.

The Graduate Programs Office is responsible for credential evaluation, admissions processing, advising, and graduation certification of business administration graduate students. In addition, personnel prepare and distribute the Plan of Work for students enrolled in graduate programs. Any student seeking academic, vocational or personal counseling should make an appointment to see a member of the counseling staff: 313-577-4511.

## Academic Standing

Students who have been admitted to the Graduate Program on a 'qualified' or conditional basis are expected to remove that status by the completion of the first twelve credits in course work with a minimum 3.0 grade point average. Failure to do so will result in dismissal from the program.

Students admitted to regular status or those who have attained regular status following a 'qualified' admission, will be given an academic warning at any time their graduate grade point average falls below 3.0. After an academic warning, students will be permitted nine credits to restore their cumulative grade point average to a 3.0 level. Failure to do so within this credit limit will result in dismissal from the program. The second (or subsequent) time(s) a student is placed on probation, he or she is subject to immediate dismissal from the Mike Ilitch School of Business.

## Advisors

No credit will be allowed for concentration courses taken below the 7000-level or courses taken outside of the Mike Ilitch School of Business without prior written approval of the Graduate Director.

Students may not modify core course requirements without approval of the Graduate Director.

The Graduate Director retains final authority for the approval of all concentration courses.

For advising, students should contact the Graduate Programs Office at 313-577-4511.

## Application for Degree

Prior to the semester in which a student intends to graduate, an online degree application must be filed with the University Records Office, 5057 Woodward. Applications and instructions are available on the University website (<https://wayne.edu/commencement/apply-for-graduation/>).

## Attendance Policy

Regular attendance is a necessary condition for success in university study. Course content includes classroom lecture and discussion, certain aspects of which may not be covered in examinations, quizzes, term papers, or homework assignments. Each Instructor will announce his or her attendance standards at the beginning of the term.

All candidates for degrees are expected to be present at commencement.

## Conduct

Each student is subject to the Student Due Process statute governing student activities and student behavior. Furthermore, it is the responsibility of each student to adhere to the principles of academic integrity. Academic integrity includes the requirement that a student is honest with him/herself, fellow students, instructors, and the University in matters concerning his or her educational endeavors. For example, a student should not falsely claim the work of another as one's own, or misrepresent him/herself so that the measures of one's academic performance do not reflect his/her own work or personal knowledge. Assignments submitted for any class are expected to be original, *not* resubmissions of work submitted in a previous or concurrent class.

If there are reasonable grounds to believe that a student has disregarded the regulations or student responsibilities, he or she may be disciplined. Such discipline may include suspension or dismissal, but no dismissal will be directed without reasonable opportunity for an appropriate hearing, as provided in the Student Due Process statute.

For more information, please reference the University Code of Conduct (<http://doso.wayne.edu/assets/codeofconduct.pdf>) or the Mike Ilitch School of Business Code of Ethics.

## Course Level Requirement

Graduate business students are required to take all core and concentration/elective course work in classes reserved exclusively for graduate students. At Wayne State University, these classes are numbered at the 7000 level or above. **A graduate student must obtain the specific written approval of the Graduate Officer prior to registering for a course that is not reserved exclusively for graduate students. Credit will not be applicable to the degree if prior approval has not been obtained.**

## Course Sequencing

The M.B.A., M.S.A. and M.S.T. curricula have been designed to provide logical sequencing of subject matter. This means that students must observe all course prerequisites and limitations, and must complete *all* required foundation courses prior to beginning any core or concentration/elective courses.

The Strategic Management course (BA 7080) is an integrative capstone course that may *only* be taken in the last twelve credits, and *only* after completion of the other five core courses in the M.B.A. curriculum.

Similarly, the Seminar in Tax and Accounting Policy (ACC 7998) must be elected as part of the final nine credits in the M.S.A. and M.S.T. student's program.

Students who do not adhere to these regulations will be administratively withdrawn from the out-of-sequence course(s) and may not be allowed to register for further course work.

**Exception:** A student taking his/her last foundation course(s) may simultaneously enroll for one or more core courses, if the relevant foundation course or prerequisite courses for the core course(s) has been satisfactorily completed.

## Course Repetition Policy

Graduate business students may not routinely repeat courses taken as part of their degree program requirements. While the repetition of certain required courses may be necessary if failing or unsatisfactory grades are earned, this should not be done without first consulting the Graduate Programs Office at 313-577-4511.



Upon petition by the student, the Graduate Committee may authorize the repetition of *two* graduate courses during a student's graduate business program, whereby the grade earned in the initial course attempt is deleted from the grade point total and grade point average calculations.

## Directed Study

A student can apply up to three credits of directed study course work to a Mike Ilitch School of Business degree. Credit allowances (1-3) are predicated on the amount of time and effort to be spent in the study. Prior to enrollment, students must have completed all core courses in their respective graduate program (other than the capstone course) with a passing grade. If enrolled in the Master of Science in Accounting or the Master of Science in Taxation programs, students must have completed at least twelve credits of graduate accounting courses or obtained the approval of the Chairperson of the Department of Accounting.

## Enrollment Eligibility

Graduate-level courses offered by the Mike Ilitch School of Business are open only to students who have been formally admitted to a Wayne State University graduate program or admitted as a graduate guest student. Students having undergraduate, post-bachelor, or any non-matriculated status are *not* eligible to take graduate courses. Graduate business courses include all courses numbered 6000-6100 and 7000 and above. All electives must be taken in accordance with an approved *Plan of Work*.

## Grade Appeal Procedure

Students disputing a final grade should first contact the instructor of the course informally. Should the dispute remain unresolved, the student may initiate a formal appeal. A copy of the Mike Ilitch School of Business's grade appeal procedure is available in the Graduate Programs Office, 103 Prentis Building, and on the School's website (<http://ilitchbusiness.wayne.edu/>).

Non-grade-related grievances should be brought directly to the appropriate departmental chairperson or to the Graduate Programs Office. Additionally, University Ombuds Services (<https://wayne.edu/ombuds/>) are available to all students for assistance in the resolution of University-related problems.

## Internships

Graduate Students can earn up to three credits in internships (ACC 7990, FIN 7890, GSC 7890, MGT 7895, MKT 7890 or TIS 7890) offered as S or U grades only, which can be applied toward their elective courses. In order to satisfy requirements for these courses, the student is expected to perform assigned tasks and responsibilities in a professional manner under the supervision of an employer for a minimum of 160 hours during the semester, and abide by the rules and regulations established by the employer and expected of all employees. The student commitment is for the entire semester even if the 160 hours have been completed prior to the end of the semester. Further, to be eligible, students must have completed all core courses in the respective graduate program (other than the capstone course) with a passing grade. If enrolled in the Master of Science in Accounting or the Master of Science in Taxation programs, students must complete at least twelve credits of graduate accounting courses or obtain the approval of the Chair of the Department of Accounting in order to enroll in an internship.

## 'Incomplete' Marks

The mark of 'I' which is not converted to a letter grade within one year from the time it was received will be changed to an 'F' (failure).

## Maximum Credit Load

A student employed full-time will normally not register for more than six to nine graduate credits. Graduate assistants are required to register for at least eight credits each semester.

## Online Courses

The Mike Ilitch School of Business offers online sections of some courses available to Traditional M.B.A. students. Students who enroll in online sections of any M.B.A. course should anticipate that, at the discretion of the instructor, they may be required to attend an in-class session for the final examination in the course.

## Passed-Not Passed Registration

Graduate students may *not* take graduate program requirements on a *passed-not passed* basis.

## Plan of Work

All course work must be in accordance with an approved Plan of Work on file in the Graduate Programs Office, 103 Prentis Building. No credit will be granted for graduate courses in business administration taken at Wayne State University prior to admission to the graduate program in the Mike Ilitch School of Business. **Only the Graduate Committee is authorized to approve changes affecting a student's foundation requirements or core courses.**

## Time Limitation for Program Completion

*Students have a six-year time limit to complete all 7000-level requirements.* The six-year period begins at the start of the semester during which the student takes his/her first 7000-level courses. Students who expect to exceed the time limitation must file a written request for an extension with the Graduate Programs Office. The School reserves the right to re-validate credits which are over-age. In re-validation cases, the Graduate Committee will set a terminal date for completion of all degree requirements, including such additional requirements as may be prescribed to re-validate the over-age credits.

## Transfer of Core and Concentration/ Elective Courses

Graduate transfer credit for core and concentration/elective courses from either a Wayne State University graduate program or a graduate program at another institution is not routinely granted. Students with a non-business undergraduate degree may only petition to transfer credit from an AACSB accredited M.B.A. program. A petition for transfer credit must be initiated by the student in the form of a letter to the Graduate Committee, prior to the completion of the first twelve credits in graduate course work. To be eligible for consideration for transfer of credit, the following conditions must be satisfied:

1. The course must have been taken at an AACSB accredited college or university;
2. The course must have been taken in a class reserved exclusively for graduate students;
3. A letter grade of 'B' (3.0) or higher must have been awarded; passed-not passed credit is not acceptable. A letter grade of 'Bminus' or less is not acceptable.
4. The course must be relevant to the student's Plan of Work as approved by the Graduate Committee.
5. The course may not be more than six years old at the time of graduation.
6. The course cannot have provided credit toward a prior degree.

A maximum of six semester credits (normally two courses) may be considered for transfer credit. In addition to evidence regarding the above six conditions, the student must submit additional supporting materials concerning any proposed transfer course. Course syllabi, examinations, class notes, texts, and the like constitute such materials.

## Waiver of Course Prerequisites

Requests for waiver of course prerequisites are not routinely granted. Waiver requests must be made in writing to the Graduate Committee and must include full documentation of the case. No waiver will be granted if the supporting documentation consists solely of professional experience proposed in lieu of course work.

## Waiver of Foundation Courses

Students are allowed to waive foundation course requirements (except BA 6005) based on equivalent course work taken at a regionally-accredited college or university. A grade of 'C' (2.0 g.p.a.) or above must have been earned in this course work. Normally these waivers are granted after review of the student's transcript(s). Students who believe additional waivers are warranted must submit evidence of course equivalency, including course syllabi, class notes, and textbooks. Waivers will not be granted on the basis of professional experience.

## Withdrawals from Class

Students should consult the instructor as to his/her policy on withdrawal from class, as well as the Drop/Add procedures (p. 41).

## AGRADE - Accelerated Graduate Enrollment

The Mike Ilitch School of Business has established an accelerated combined undergraduate and graduate program ('AGRADE') whereby qualified students in the Mike Ilitch School of Business may enroll simultaneously in undergraduate and graduate courses of the School. A maximum of twelve credits may be applied towards both undergraduate and graduate degrees in a student's major field if the major department is an AGRADE participant. Those who elect the 'AGRADE' program may expect to complete the Bachelor's and Master's degrees in five years of full-time study.

AGRADE accelerated graduate program option

**Save money and time toward your graduate business degree with the Accelerated Graduate Enrollment (AGRADE) program.**

Highly qualified Wayne State University Mike Ilitch School of Business students are eligible to participate in the AGRADE program. AGRADE students can cut substantial time and as much as one-third off the total cost of a WSU graduate business degree program by applying up to 12 credits toward both their undergraduate and select graduate degrees.

### AGRADE benefits

- Start earning your master of business administration (M.B.A.) (<https://ilitchbusiness.wayne.edu/mba/>), master of science in accounting (M.S.A.) (<https://ilitchbusiness.wayne.edu/accounting/ms.php>), master of science in finance (<https://ilitchbusiness.wayne.edu/finance/masters.php>) or executive master of science in automotive supply chain management (<https://ilitchbusiness.wayne.edu/supply-chain/masters.php>) while completing your bachelor's degree
- Earn graduate credits at undergraduate tuition rates

- Apply up to 12 credits of selected graduate courses (<https://ilitchbusiness.wayne.edu/students/agrade.php#agradecourses>) as dual credit for undergraduate and eligible graduate programs
- Option to move immediately to the graduate program or rejoin the program later
- Earn both your bachelor's and master's degrees in as little as five years

### AGRADE requirements

- Undergraduate major in accounting, finance, global supply chain management, technology information systems & analytics, management or marketing
- Senior standing (~90 credits earned)
- Overall GPA of 3.5 or higher at WSU
- Major GPA of 3.6 or higher at WSU
- Meet with undergraduate and graduate advisors to discuss program requirements
- Complete the Dual Credit Enrollment Form
- Courses apply to M.B.A., M.S.A., master of science in finance or executive master of science in automotive supply chain management degrees only

### Transfer of courses

Only those AGRADE-approved courses in which the student has earned a B or higher will transfer to the graduate transcript. Once in the master's program, students may be required to repeat an AGRADE course in which they earn less than a B grade. AGRADE courses will not be transferred to the student's graduate transcript until one semester of graduate course work has been successfully completed.

### Approved AGRADE courses

For students approved to participate in the AGRADE program, four of the following courses from any one of the program areas listed below may be counted toward both their bachelor's degree and M.B.A. All courses are three credits.

*Take no more than four courses or 12 credits from any one of the following program areas.*

Code	Title	Credits
<b>Accounting</b>		
ACC 7120	Introduction to Taxation: Individuals	3
ACC 7122	Advanced Accounting I	3
ACC 7130	Intermediate Managerial Accounting	3
ACC 7145	Accounting Systems: Design and Controls	3
ACC 7148	ERP Systems and Business Integration	3
ACC 7165	Internal Audit I	3
ACC 7180	Auditing	3
ACC 7188	Governmental and Not-for-Profit Accounting	3
ACC 7320	Introduction to Taxation: Business Entities	3
<b>Finance</b>		
FIN 7000	Applied Financial Analysis	3
FIN 7220	Advanced Managerial Finance	3
FIN 7230	Investment Policies	3
FIN 7280	Entrepreneurial Finance and Venture Capital	3
FIN 7870	International Finance	3
FIN 7990	Portfolio Management/Student Managed Investment Fund (SMIF)	3
<b>Global Supply Chain Management</b>		
GSC 7620	Global Logistics Management	3

GSC 7650	Strategic Procurement	3
GSC 7670	Special Topics in Supply Chain Management	3
GSC 7680	Manufacturing Planning and Control	3
GSC 7920	Supply Chain Process Analysis and Costing	3
GSC 7991	Principles of Quality Management	3
<b>Management</b>		
MGT 7620	Complex Organizations	3
MGT 7640	Management of Human Resources	3
MGT 7650	Strategic Human Resource Management	3
MGT 7660	Entrepreneurial Management	3
MGT 7730	People Analytics	3
MGT 7750	Managing Employee Relations	3
MGT 7900	Project Management	3
<b>Marketing</b>		
MKT 7150	Global Automotive Marketing Strategy	3
MKT 7430	Advertising Management	3
MKT 7450	Business Research and Methodology	3
MKT 7470	Consumer and Industrial Buying Behavior	3
MKT 7500	International Marketing Strategy	3
MKT 7700	Management of Retail Enterprises	3
<b>Technology, Information Systems and Analytics</b>		
TIS 7505	Information Analytics: Inbound Information Technology	3
TIS 7510	Database Management	3
TIS 7520	Information Systems Design	3
TIS 7530	Societal and Ethical Issues in the Information Age	3
TIS 7560	Survey of E-Commerce	3
TIS 7570	Advanced Business Analytics	3
TIS 7900	Project Management	3
TIS 7994	Digital Content Development	3

master's degree will be earned in the conventional manner following formal admission to the graduate program.

For more details about the 'AGRADE' program, contact the Frederick Hessler Student Success Center by calling 313-577-4505, or contact the Graduate Programs Office at 313-577-4511 or email [gradbusiness@wayne.edu](mailto:gradbusiness@wayne.edu).

## Eligibility

'AGRADE' applicants must have an overall g.p.a. of 3.5 through their junior year. Applicants are also expected to have performed at a superior level in their major, as determined by the major department and reflected in a g.p.a. in the major of at least 3.6 at the time of application. Students approved for AGRADE cannot complete Senior Rule.

## Application

A student seeking 'AGRADE' status should present to the Mike Ilitch School of Business Graduate Programs Office all of the materials which that department requires for normal graduate admission, EXCEPT for the GMAT or Graduate Record Examination (GRE). Specific graduate admission requirements can be found in this bulletin or obtained from the Graduate Programs Office of the Mike Ilitch School of Business at 313-577-4511.

The earliest date by which a student may apply for the 'AGRADE' program is during the semester in which he/she completes ninety credits toward the undergraduate degree. AGRADE application deadlines are the same as graduate admissions deadlines as posted on the Mike Ilitch School of Business Admissions Web Page.

## AGRADE Credits

Students may elect a minimum of three and a maximum of twelve 'AGRADE' credits. These will be used to complete the baccalaureate degree as well as to serve as the beginning of graduate study. Upon formal admission to a master's program, 'AGRADE' credits are transferred as if they were graduate credits transferred from a graduate program at another university. The remaining graduate credits required for the

# Accounting (M.S.A.)

## Admission Requirements

Admission to any graduate program is contingent upon admission to the Graduate School (p. 21). In addition, applicants to the M.S.A. program must comply with the following:

Admission to the Master of Science in Accounting (M.S.A.) program is limited to students who demonstrate high promise of success and hold a baccalaureate degree in business administration, a discipline area of business administration, or accounting from regionally accredited institutions. Several measures of probable success that may be considered in the evaluation of an applicant include but are not limited to:

1. Performance on the Graduate Management Admission Test (GMAT) (p. 78).
2. Undergraduate grade point averages and the trend of grades earned during undergraduate education.
3. Other relevant factors such as employment and leadership experience.

The M.S. in Accounting Committee is authorized to review the credentials of each applicant. Final approval of the applicant's admission to graduate study in accounting is authorized by the Dean of the Mike Ilitch School of Business or the Dean's designee, upon recommendation of the M.S.A. Committee. Appeals to an admission denial must be made in writing to the Director of Graduate Programs, Mike Ilitch School of Business. A copy of the guidelines for formal appeals is available in the School's Graduate Programs Office.

Before an applicant can be considered for admission, the following material must be timely submitted:

1. an online W.S.U. Application for Graduate Admission (<http://www.gradadmissions.wayne.edu>);
2. an official transcript from each college or university previously attended by the applicant;
3. an official notification of the applicant's score on the GMAT and, if required, the TOEFL. For information regarding the GMAT.

## Program Requirements

The M.S.A. degree program requires completion of thirty credits in final-program course work with a grade point average of not less than 3.0. Additional foundation coursework may also be required prior to starting the thirty credits of final-program coursework. Degrees are granted upon recommendation of the faculty of the Mike Ilitch School of Business. Consideration is given to both scholastic achievement and the extent to which the candidate has met the standards and requirements of the School. All course work must be completed in accordance with the regulations of the Graduate School and the Mike Ilitch School of Business governing graduate scholarship and degrees; see the sections beginning under Academic Regulations (p. 24) and Academic Regulations for the Mike Ilitch School of Business (p. 71), respectively. University policies on transfer of credits from other institutions will apply.

## Course Distribution Requirements (M.S.A.)

The M.S.A. program consists of four course categories, as follows:

**Foundation Courses** are required pre-professional courses but ones for which credit is not applicable to the M.S.A. degree. Applicants who have already earned a degree in business administration or accounting

may usually be able to waive most, if not all, of the foundation course requirements.

**Core Courses** comprise 18-24 credits, which must include each of the courses listed under the chosen concentration, providing in-depth coverage of the body of knowledge associated with studies in accounting. Applicants who have already earned a degree in accounting may be able to waive many of the core courses and substitute accounting electives in their place.

**Elective Courses** are 1-3 additional courses surrounding coverage of the body of knowledge associated with studies in accounting.

**Capstone Course:** When nearing the conclusion of the M.S. in Accounting program, the degree candidate will take ACC 7998, Seminar in Tax and Accounting Policy.

## Foundation Requirements (M.S.A.)

The M.S.A. is an advanced degree. Before progressing to the core courses of the program, the student should possess a solid foundation in accounting as comprised by the following courses:

Code	Title	Credits
BA 6000	Introduction to Accounting and Financial Reporting	3
ACC 7100	Financial Accounting for Decision Making (Required for Financial Reporting and Professional Accounting Concentrations)	3
ACC 7120	Introduction to Taxation: Individuals (Required for Taxation Concentration)	3
BA 7000	Managerial Accounting	3

However, if the applicant's business administration or accounting degree is from a college or university located outside of the United States, some or all of the foundation requirements may not be waived because U.S. generally accepted accounting principles (US GAAP) may not have been studied.

The graduate-level foundation courses cited above are open only to students who have been formally admitted to a graduate program at Wayne State University. Analogous courses offered at the undergraduate level (as determined by the admission evaluation process) may be taken to satisfy foundation requirements prior to graduate admission. However, once a student has been formally admitted to the M.S.A. program, NO graduate credit will be allowed for subsequent registration in undergraduate courses.

A cumulative grade point average of 3.0 ('B') is required in foundation requirements courses. No individual grade below 'C' (2.0) is acceptable. Students may begin taking Core courses during the semester in which they elect Foundation Requirements, subject to the prerequisite and corequisite requirements of the Core courses.

## Core Requirements (M.S.A.) (18-24 Credits)

The following core courses are required of all students depending on the chosen concentration and are prerequisite or corequisite to subsequent/concurrent elective courses. ACC 7300 must be completed within the first nine credits of the program.

For students in the Professional Accounting Concentration, ACC 7120 is considered a core course, and credit from this course will be applied to the M.S.A. For students in the Financial Reporting and Auditing Concentration or the Taxation Concentration, ACC 7120 is considered a



foundation course, and credit from this course is not applicable to the M.S.A degree requirements.

Code	Title	Credits
<b>Professional Accounting Concentration Core Requirements</b>		
ACC 7115	Financial Statement Analysis	3
ACC 7120	Introduction to Taxation: Individuals	3
ACC 7130	Intermediate Managerial Accounting	3
ACC 7145	Accounting Systems: Design and Controls	3
ACC 7180	Auditing	3
ACC 7188	Governmental and Not-for-Profit Accounting	3
ACC 7300	Accounting and Tax Research and Professional Communications	3
ACC 7310	Business and Professional Ethics for Managers and Accountants	3
ACC 7998	Seminar in Tax and Accounting Policy	3
Select one of the following:		3
ACC 7122	Advanced Accounting I	
ACC 7148	ERP Systems and Business Integration	
ACC 7155	Forensic Accounting	
ACC 7165	Internal Audit I	
ACC 7170	International Accounting	
ACC 7190	Advanced Auditing	
ACC 7280	Accounting Data Analytics	
ACC 7290	Blockchain: An Accounting and Business Perspective	
ACC 7320	Introduction to Taxation: Business Entities	
ACC 7325	Advanced Tax Research and IRS Procedures	
ACC 7335	Taxation of Corporations and Shareholders	
ACC 7340	Taxation of Pass-Through Entities	
ACC 7400	Taxation of International Business and Multinational Transactions	
ACC 7410	Tax Accounting Methods and Accounting for Income Taxes	
ACC 7420	Taxation by State and Local Jurisdictions	
ACC 7450	Taxes and Business Strategy	
ACC 7990	Internship in Accounting or Tax Practice	
ACC 7995	Directed Study in Accounting	

**Total Credits** **30**

Code	Title	Credits
<b>Financial Reporting and Auditing Concentration Core Requirements</b>		
ACC 7115	Financial Statement Analysis	3
ACC 7122	Advanced Accounting I	3
ACC 7180	Auditing	3
ACC 7280	Accounting Data Analytics	3
ACC 7300	Accounting and Tax Research and Professional Communications	3
ACC 7310	Business and Professional Ethics for Managers and Accountants	3
ACC 7998	Seminar in Tax and Accounting Policy	3
Select three of the following:		9
ACC 7120	Introduction to Taxation: Individuals	
ACC 7130	Intermediate Managerial Accounting	
ACC 7145	Accounting Systems: Design and Controls	
ACC 7148	ERP Systems and Business Integration	
ACC 7155	Forensic Accounting	

ACC 7165	Internal Audit I
ACC 7170	International Accounting
ACC 7188	Governmental and Not-for-Profit Accounting
ACC 7190	Advanced Auditing
ACC 7290	Blockchain: An Accounting and Business Perspective
ACC 7320	Introduction to Taxation: Business Entities
ACC 7325	Advanced Tax Research and IRS Procedures
ACC 7335	Taxation of Corporations and Shareholders
ACC 7340	Taxation of Pass-Through Entities
ACC 7400	Taxation of International Business and Multinational Transactions
ACC 7410	Tax Accounting Methods and Accounting for Income Taxes
ACC 7420	Taxation by State and Local Jurisdictions
ACC 7450	Taxes and Business Strategy
ACC 7990	Internship in Accounting or Tax Practice
ACC 7995	Directed Study in Accounting

**Total Credits** **30**

Code	Title	Credits
<b>Taxation Concentration Core Requirements</b>		
ACC 7280	Accounting Data Analytics	3
ACC 7300	Accounting and Tax Research and Professional Communications	3
ACC 7310	Business and Professional Ethics for Managers and Accountants	3
ACC 7320	Introduction to Taxation: Business Entities	3
ACC 7325	Advanced Tax Research and IRS Procedures	3
ACC 7335	Taxation of Corporations and Shareholders	3
ACC 7340	Taxation of Pass-Through Entities	3
ACC 7998	Seminar in Tax and Accounting Policy	3
Select two of the following:		6
ACC 7115	Financial Statement Analysis	
ACC 7120	Introduction to Taxation: Individuals	
ACC 7122	Advanced Accounting I	
ACC 7130	Intermediate Managerial Accounting	
ACC 7145	Accounting Systems: Design and Controls	
ACC 7148	ERP Systems and Business Integration	
ACC 7155	Forensic Accounting	
ACC 7165	Internal Audit I	
ACC 7170	International Accounting	
ACC 7180	Auditing	
ACC 7188	Governmental and Not-for-Profit Accounting	
ACC 7190	Advanced Auditing	
ACC 7290	Blockchain: An Accounting and Business Perspective	
ACC 7400	Taxation of International Business and Multinational Transactions	
ACC 7410	Tax Accounting Methods and Accounting for Income Taxes	
ACC 7420	Taxation by State and Local Jurisdictions	
ACC 7450	Taxes and Business Strategy	
ACC 7990	Internship in Accounting or Tax Practice	
ACC 7995	Directed Study in Accounting	

**Total Credits** **30**



For students who have completed undergraduate or graduate courses equivalent to Core courses within the preceding three years with a grade point average of 3.0 or above, one or more advanced courses in accounting may be substituted for Core courses, at the discretion of the M.S.A. committee.

Students may choose electives from graduate business courses (offered at the 7000 level) based on their professional interests, with prior approval from the M.S. in Accounting Committee.

## Capstone Requirement (M.S.A.)

ACC 7998, Seminar in Tax and Accounting Policy, is the capstone course for all M.S.A. degree candidates; it must be elected as part of the final nine credits in the student's program. ACC 7998 provides the opportunity to combine concepts developed by students in their professional and educational experience with economic, social, industrial, administrative, and legislative policy considerations.

# Automotive Supply Chain Management (Executive M.S.)

## Admission Requirements

Admission to the Executive Master of Science in Automotive Supply Chain Management (EMS-SCM) program is contingent upon admission to the Wayne State University Graduate School (<https://wayne.edu/apply/#fndtn-graduate>). *Please note: The admission application's academic programs list is alphabetical; you'll find this degree listed as Automotive Supply Chain Management.*

In addition to Wayne State's graduate school admission criteria, applicants to the EMS-SCM program must meet the following requirements:

- Baccalaureate degree or equivalent from a regionally, or nationally, accredited institution. If the applicant's undergraduate degree is in a non-business discipline, the applicant may be required to complete foundation courses determined by the selection committee.
- Overall undergraduate GPA of 2.75, with a 3.0 major GPA (on a 4.0 scale).
- A current resume.

On-campus or phone interviews may be required. Background in supply chain management (via undergraduate degree, professional certification or work experience) is preferred but not required. The committee will base its recommendation for admissions on the composite characteristics of the applicant.

## Program Requirements

The EMS-SCM is a 31 credit degree program that can be completed in three semesters for full-time students. By taking six credit hours (two courses) per semester, a part-time student can complete the program in five semesters. Students enrolled in the program must complete the program within six years of their start date.

Up to six transfer credits for previous equivalent graduate coursework can be applied to the degree if those credits have not been counted towards a degree, earned a B grade or better, are from an AACSB accredited institution, not older than 6 years and are equivalent substitutes. Students transferring to the program from the Ilitch School's M.B.A. with a concentration in global supply chain management may transfer unlimited Wayne State graduate credits in global supply chain management.

A minimum grade point average (GPA) of 3.00 is required to obtain the EMS-SCM degree. A maximum of two courses in which a C has been received may be used to meet graduation requirements, provided this is offset by sufficient A grades to maintain the required 3.00 grade point average.

## Online Program

The EMS-SCM program is available in a fully online format. Students enrolled in a fully online major are limited to registering for courses listed in the Schedule of Classes with the Instructional Methods: Online — No Scheduled Meetings or Online — Scheduled Meetings. Students who are eligible to enroll in the online program will qualify for Michigan resident tuition rates, more details are available in the Academic Regulations section of the Graduate Bulletin.

## Curriculum

All courses listed below are three credits each unless otherwise noted.

Code	Title	Credits
<b>Core Courses</b>		<b>25</b>
The core courses form the backbone of the EMS-SCM program, providing the critical skills needed for various specialties within the broader field.		
ACC 7148	ERP Systems and Business Integration	
BA 7010	Global Operations and Supply Chain Management	
GSC 7010/ DSB 6200	Manufacturing and Supply Chain Analytics	
GSC 7620	Global Logistics Management	
GSC 7650	Strategic Procurement	
GSC 7680	Manufacturing Planning and Control	
GSC 7930	Customs Administration and High Tech Purchasing	
GSC 7960	Lean Six Sigma	
GSC 7995	Directed Study in Global Supply Chain <sup>1</sup>	
<b>Electives</b>		<b>3</b>
BA 7030	Business Analytics	
BA 7060	Understanding Emerging Technologies	
BA 7070	Social Perspectives on the Business Enterprise	
GSC 7000	Consultative Analysis and Executive Presentation	
GSC 7100	Study Abroad	
GSC 7920	Supply Chain Process Analysis and Costing	
MKT 7950	Business and Sustainability	
TIS 7900	Project Management	
<b>Capstone Requirement</b>		<b>3</b>
GSC 7950	Auto Industry Supply Chain Management	
<b>Total Credits</b>		<b>31</b>

<sup>1</sup> There are two critical value added activities in this program: training sessions provided in conjunction with the Automotive Industry Action Group and networking sessions with automotive industry professionals. A combination of these are required and covered as part of the 1 credit directed study in supply chain management. The directed study course is designed to provide students with automotive industry produced training programs and conferences. Students in the 1 credit directed study are required to participate in the following and provide documentation of participation:

- Completion of 3 Automotive Industry Action Group (AIAG) online training modules related to quality, sustainability, or supply chain management in general, or other such programs agreed to by the directed study (GSC 7995) course instructor.
- Participation in 2 conferences on broad supply chain management topics produced by the Automotive Industry Action Group (AIAG) or other industry related program approved by the study abroad (GSC 7995) course instructor.

#### International experience requirement

Students are required to have an international experience as part of the program. This can be fulfilled by either taking one of our Study Abroad courses or writing a paper on an international experience or topic as part of the GSC 7950 Auto Industry SCM Capstone course.

## Business Administration (M.B.A. Program)

### Admission (M.B.A.)

Admission to any graduate program is contingent upon admission to the Graduate School (p. 21). In addition, applicants to the M.B.A. program must comply with the following:

Admission to the Master of Business Administration program is limited to holders of baccalaureate degrees from regionally accredited institutions who demonstrate high promise of success in graduate business study. Several measures of probable success may be included in the evaluation of an applicant; criteria which may be considered are:

1. Performance on the Graduate Management Admission Test (GMAT); see below.
2. Undergraduate grade point averages and the trend of grades earned during undergraduate education.
3. Other indicators of promise of success in the graduate study of business, such as relevant employment and leadership experience.

Appeals to an admission denial may be made in writing to the Assistant Dean of Graduate Programs, Mike Ilitch School of Business. Guidelines for formal appeals are available in the Mike Ilitch School of Business Graduate Programs Office.

### Graduate Management Admission Test (GMAT)

The GMAT must be taken prior to admission to graduate study. This test is a three-hour aptitude test designed to measure certain mental abilities and skills important in the study of management. The GMAT includes verbal, quantitative analytical writing and integrated reasoning sections administered by a computer.

The GMAT is offered on a continuous basis by appointment at computer-based testing centers throughout North America and at selected international sites. Candidates can schedule a testing appointment by calling 1-800-717-GMAT (4628). A list of test centers is provided in the GMAT Bulletin (<http://mba.com>) and on GMAT's website (<http://gmac.com>).

Most prospective graduate business students will take the GMAT for admissions, although the School of Business does offer GMAT/GRE waivers to highly qualified applicants. This is generally defined as those applicants who meet one of the following criteria:

1. Acceptable score on the Graduate Record Examinations (GRE), Law School Admission Test (LSAT) or Medical College Admission Test (MCAT) entrance exam.
2. GPA of 3.0 or higher from an AACSB-accredited business program (or GPA of 3.2 or higher from a regionally-accredited university in any major) OR at least three years of relevant professional experience that shows increased responsibility over that period.

Please contact the Graduate Programs Office for more information on GMAT waivers or equivalency requirements

### Application

A completed Application for Graduate Admission (<http://wayne.edu/admissions/graduate/>), the application fee, and an official transcript from each college or university attended are required before a student can be considered for admission to graduate status.

## Program Requirements

Candidates for the Master of Business Administration degree must complete thirty-six credits of core and elective/concentration course work with a minimum grade point average of 3.0. Additional foundation course work may be required prior to beginning these thirty-six credits.

Degrees are granted upon the recommendation of the faculty of the Mike Ilitch School of Business. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the Mike Ilitch School of Business (p. 71) governing graduate scholarship and degrees.

M.B.A. students who hold a baccalaureate degree in a field other than accounting and who wish to qualify to sit for the C.P.A. examination in the State of Michigan should contact their advisor in the Graduate Programs Office (313-577-4511) as early as possible. While no formal M.B.A. curriculum is offered to meet the educational requirements of the Michigan State Board of Accountancy, an individualized Plan of Work can be developed. Generally, such a Plan of Work includes more than the minimum number of courses required for the M.B.A.

### Online M.B.A. Program

The M.B.A. program is available in a fully online format. Students enrolled in a fully online major are limited to registering for courses listed in the Schedule of Classes with the Instructional Methods: Online — No Scheduled Meetings or Online — Scheduled Meetings. Students who are eligible to enroll in the online program will qualify for Michigan resident tuition rates, more details are available in the Academic Regulations (p. 26) section of the Graduate Bulletin.

## Course Distribution Requirements (M.B.A.)

The master's degree program provides a fundamental background in business administration as well as opportunities for advanced specialization in particular areas. The program beyond the common body of knowledge is broad in nature and is directed at general competence for overall business management. There are three phases of course work required:

- foundation (p. 79)
- core (p. 79)
- electives (p. 80) or concentrations (p. 81)

Depending on the student's academic background, there may be no foundation courses or as many as four foundation courses required. All students must complete nine core courses. Students must also choose three elective courses which can be used as part of a general curriculum. Students in the M.B.A. program may select electives that apply toward the completion of one of the concentrations as listed on the Concentrations tab.

## Foundation Requirements (M.B.A.)

The following foundation courses are open only to students who have been formally admitted to a graduate program at Wayne State University — undergraduate, post-baccalaureate, and non-matriculated students are not eligible. (Analogous courses offered at the undergraduate level may be taken to satisfy Foundation Requirements prior to graduate admission. However, once a student has been formally admitted to the M.B.A. program, NO graduate credit shall be allowed for subsequent registrations in undergraduate courses analogous to the Graduate Foundation Requirements without approval of the Graduate Committee or its designee. Information regarding such courses is available in the Graduate Programs Office, 2771 Woodward Avenue, Suite 137.) A

cumulative grade point average of 3.00 ('B') is required for foundation requirements and no individual grade below 2.0 ('C') is acceptable. **All foundation requirements must be completed before a student begins core and elective courses.**

Code	Title	Credits
BA 6000	Introduction to Accounting and Financial Reporting	3
BA 6005	Basics of Financial Management	3
BA 6015	Marketing Foundations	2
BA 6020	Contemporary Principles of Management	2

In general, a baccalaureate degree in Business Administration from a regionally accredited institution fulfills most foundation requirements. However, each applicant's background will be individually examined to determine if any foundation course work is needed. If courses proposed to satisfy the foundation requirements of the M.B.A. program are over six years old, the Graduate Committee may require the applicant to demonstrate proficiency in the subject matter either by interview with a faculty member, by taking an equivalent course, or by taking an equivalent course by examination.

**Foundation Waivers:** While all of the above foundation courses are required, students who have had equivalent course work in their undergraduate programs (except for BA 6005, see below) with a cumulative g.p.a. of 3.00 ('B') or higher may be granted waivers of certain foundation courses at the time of their admission to the graduate program.

### BA 6005 Foundation Waiver Criteria:

1. Students who have earned a grade of 3.00 ('B') or higher in an undergraduate course that is compatible with BA 6005 and the prior course was taken within the last three years from an AACSB accredited college or university. These students must also have quantitative GMAT/GRE scores higher than the 50th percentile.
2. Students who are Finance or Accounting majors from an AACSB accredited US or Canadian university, have obtained a g.p.a. of 3.00 or higher in the major, and have graduated in the last two years.
3. Students who are not Finance or Accounting major but have completed FIN 3290 or an equivalent course from an AACSB accredited US or Canadian university within the last 12 months and passed the course with a grade of 3.33 ('B+') or higher.
4. Students who do not meet any of these conditions may take and pass a waiver exam administered by the Department of Finance; however, they are strongly encouraged to take BA 6005. BA 6005 (Basics of Financial Management) is a prerequisite for BA 7020.

## Core Requirements (M.B.A.)

The following nine core courses are required of all students:

Code	Title	Credits
BA 7000	Managerial Accounting	3
BA 7010	Global Operations and Supply Chain Management	3
BA 7020	Corporate Financial Management	3
BA 7030	Business Analytics	3
BA 7040	Managing Organizational Behavior	3
BA 7050	Marketing Strategy	3
BA 7060	Understanding Emerging Technologies	3
BA 7070	Social Perspectives on the Business Enterprise	3
BA 7080	Strategic Management <sup>1</sup>	3

<sup>1</sup> BA 7080 is the capstone course and is to be taken in the final twelve credits of the graduate program and only after the completion of the other eight core courses. For those students with an undergraduate major in accounting, management or marketing, a more advanced course in a subject area (approved as part of the student's Plan of Work) must replace the pertinent core course noted above.

## Elective Requirements (M.B.A.)

All elective courses must be at the 7000 level or higher and must be offered by the Mike Ilitch School of Business. The written approval of the Dean or his/her designee is required to take any course as an M.B.A. elective outside the Mike Ilitch School of Business. (Only students holding a bachelor's degree in business administration are eligible to take elective courses outside the Mike Ilitch School of Business.) Students may select any combination of elective courses from the following set of courses.

### Accounting

Code	Title	Credits
ACC 7100	Financial Accounting for Decision Making	3
ACC 7115	Financial Statement Analysis	3
ACC 7120	Introduction to Taxation: Individuals	3
ACC 7122	Advanced Accounting I	3
ACC 7130	Intermediate Managerial Accounting	3
ACC 7145	Accounting Systems: Design and Controls	3
ACC 7148	ERP Systems and Business Integration	3
ACC 7155	Forensic Accounting	3
ACC 7165	Internal Audit I	3
ACC 7170	International Accounting	3
ACC 7180	Auditing	3
ACC 7188	Governmental and Not-for-Profit Accounting	3
ACC 7190	Advanced Auditing	3
ACC 7280	Accounting Data Analytics	3
ACC 7300	Accounting and Tax Research and Professional Communications	3
ACC 7310	Business and Professional Ethics for Managers and Accountants	3
ACC 7320	Introduction to Taxation: Business Entities	3
ACC 7325	Advanced Tax Research and IRS Procedures	3
ACC 7335	Taxation of Corporations and Shareholders	3
ACC 7340	Taxation of Pass-Through Entities	3
ACC 7400	Taxation of International Business and Multinational Transactions	3
ACC 7410	Tax Accounting Methods and Accounting for Income Taxes	3
ACC 7420	Taxation by State and Local Jurisdictions	3
ACC 7450	Taxes and Business Strategy	3
ACC 7998	Seminar in Tax and Accounting Policy	3
ACC 7990	Internship in Accounting or Tax Practice	1-3
ACC 7995	Directed Study in Accounting	1-3

### Business Law

Code	Title	Credits
BLW 7220	Business Law II	3

## Entrepreneurship and Innovation

### Course List

Code	Title	Credits
EI 7000	Introduction to Entrepreneurship and Innovation	3
EI 7400	Management and Leadership for Entrepreneurs	3
EI 7600	Marketing New Ventures	3
EI 7800	Special Topics in Entrepreneurship and Innovation	3
EI 7850	Directed Study in Entrepreneurship and Innovation	3
EI 7900	Entrepreneurship and Innovation Capstone	3

### Finance

Code	Title	Credits
FIN 7000	Applied Financial Analysis	3
FIN 7090	Money and Capital Markets	3
FIN 7200	Startup Financing and Profitability	3
FIN 7220	Advanced Managerial Finance	3
FIN 7229	Corporate Valuation: Techniques, Models and Strategic Applications	3
FIN 7230	Investment Policies	3
FIN 7270	Entrepreneurs' Ecosystem	3
FIN 7280	Entrepreneurial Finance and Venture Capital	3
FIN 7290	Topics in Finance	3
FIN 7340	Futures and Options	3
FIN 7870	International Finance	3
FIN 7890	Internship in Finance	3
FIN 7900	Mergers and Acquisitions	3
FIN 7990	Portfolio Management/Student Managed Investment Fund (SMIF)	3
FIN 7995	Directed Study	1-3

## Global Supply Chain Management

Code	Title	Credits
GSC 7010	Manufacturing and Supply Chain Analytics	3
GSC 7260	Theory of Constraints: Breakthrough Solutions	3
GSC 7620	Global Logistics Management	3
GSC 7670	Special Topics in Supply Chain Management	3
GSC 7650	Strategic Procurement	3
GSC 7680	Manufacturing Planning and Control	3
GSC 7890	Internship in Global Supply Chain	3
GSC 7910	Managing Automotive Supply Chains Sustainability	3
GSC 7920	Supply Chain Process Analysis and Costing	3
GSC 7930	Customs Administration and High Tech Purchasing	3
GSC 7950	Auto Industry Supply Chain Management	3
GSC 7960	Lean Six Sigma	3
GSC 7991	Principles of Quality Management	3
GSC 7992	Methods of Quality Management	3
GSC 7995	Directed Study in Global Supply Chain	1-3

## Management

Code	Title	Credits
MGT 7620	Complex Organizations	3
MGT 7630	Organizational Change and Development	3
MGT 7640	Management of Human Resources	3
MGT 7650	Strategic Human Resource Management	3

MGT 7660	Entrepreneurial Management	3
MGT 7700	Leadership and Management of Innovation and Technology	3
MGT 7730	People Analytics	3
MGT 7750	Managing Employee Relations	3
MGT 7780	Workplace Negotiations	3
MGT 7815	Strategic Leadership	3
MGT 7816	Leading Self and Others	3
MGT 7850	Management through Constructive Persuasion	3
MGT 7895	Internship in Management	3
MGT 7900 or TIS 7900	Project Management	3
MGT 7950 or MKT 7950	Business and Sustainability	3
MGT 7995	Directed Study in Management	1-3
MGT 8000	Seminar in Management	3

## Marketing

Code	Title	Credits
MKT 7150	Global Automotive Marketing Strategy	3
MKT 7430	Advertising Management	3
MKT 7450	Business Research and Methodology	3
MKT 7460	International Business	3
MKT 7470	Consumer and Industrial Buying Behavior	3
MKT 7500	International Marketing Strategy	3
MKT 7700	Management of Retail Enterprises	3
MKT 7860	Social Media and Digital Marketing Analytics	3
MKT 7870	Seminar in Marketing	3
MKT 7890	Internship in Marketing	3
MGT 7950 or MKT 7950	Business and Sustainability	3
MKT 7995	Directed Study in Marketing	1-3

## Sport and Entertainment Management

Code	Title	Credits
SEM 7100	Sport & Entertainment Management	3
SEM 7110	Sport & Entertainment Marketing Communications	3
SEM 7120	Event Planning and Management	3
SEM 7130	Managerial Finance in Sport & Entertainment	3
SEM 7140	Sports & Entertainment Economics	3
SEM 7995	Directed Study in Sport and Entertainment Management	3
SEM 8000	Special Topics in Sport and Entertainment Management	3

## Technology, Information Systems and Analytics

Code	Title	Credits
TIS 7290	Blockchain: An Accounting and Business Perspective	3
TIS 7505	Information Analytics: Inbound Information Technology	3
TIS 7507	Application Development with Swift	3
TIS 7520	Information Systems Design	3
TIS 7530	Societal and Ethical Issues in the Information Age	3
TIS 7560	Survey of E-Commerce	3
TIS 7570	Advanced Business Analytics	3

TIS 7575	Corporate Computer Networks and IT Security	3
TIS 7680	Information Visualization for Business	3
TIS 7900	Project Management	3
TIS 7994	Digital Content Development	3
TIS 7996	Principles for Customer Relationship Management	3

## Concentration Requirements (M.B.A.)

The purpose of the concentration is to provide depth in a specialization that will contribute to the student's attainment of his or her professional objectives. The Mike Ilitch School of Business currently offers eleven areas of concentration. The following are the areas of concentrations and the list of courses that must be completed to fulfill the concentration requirement.

### Accounting Systems Concentration

Code	Title	Credits
Select three of the following:		9
ACC 7100	Financial Accounting for Decision Making	
ACC 7130	Intermediate Managerial Accounting	
ACC 7145	Accounting Systems: Design and Controls	
ACC 7148	ERP Systems and Business Integration	
ACC 7280	Accounting Data Analytics	
<b>Total Credits</b>		<b>9</b>

### Digital / Business Analytics

Students must complete at least three courses from the following.

Code	Title	Credits
<b>Principles</b>		
TIS 7505	Information Analytics: Inbound Information Technology	3
TIS 8000	Seminar in Information Systems and Management	3
<b>Insight Generation</b>		
TIS 7510	Database Management	3
TIS 7570	Advanced Business Analytics	3
TIS 7680	Information Visualization for Business	3
<b>Delivery (Web/Mobile)</b>		
TIS 7507	Application Development with Swift	3
TIS 7994	Digital Content Development	3

### Entrepreneurship and Innovation Concentration

Code	Title	Credits
EI 7000 or MGT 7660	Introduction to Entrepreneurship and Innovation	3
Select at least two of the following:		6
EI 7400 or MGT 7700	Management and Leadership for Entrepreneurs	
EI 7600	Marketing New Ventures	
EI 7800	Special Topics in Entrepreneurship and Innovation	
FIN 7200	Startup Financing and Profitability	
FIN 7270	Entrepreneurs' Ecosystem	
FIN 7280	Entrepreneurial Finance and Venture Capital	
MGT 7700	Leadership and Management of Innovation and Technology	
MGT/MKT 7950	Business and Sustainability	



MKT 7860	Social Media and Digital Marketing Analytics	
TIS 7505	Information Analytics: Inbound Information Technology	
TIS 7560	Survey of E-Commerce	
TIS 7994	Digital Content Development	
TIS 7996	Principles for Customer Relationship Management	
<b>Total Credits</b>		<b>9</b>

## Financial Accounting Concentration

Code	Title	Credits
ACC 7100	Financial Accounting for Decision Making	3
Select at least two of the following:		6
ACC 7115	Financial Statement Analysis	
ACC 7122	Advanced Accounting I	
ACC 7145	Accounting Systems: Design and Controls	
ACC 7155	Forensic Accounting	
ACC 7170	International Accounting	
ACC 7180	Auditing	
ACC 7188	Governmental and Not-for-Profit Accounting	
ACC 7190	Advanced Auditing	
<b>Total Credits</b>		<b>9</b>

## Finance Concentration

Code	Title	Credits
FIN 7230	Investment Policies	3
Select at least two of the following:		6
FIN 7000	Applied Financial Analysis	
FIN 7220	Advanced Managerial Finance	
FIN 7229	Corporate Valuation: Techniques, Models and Strategic Applications	
FIN 7270	Entrepreneurs' Ecosystem	
FIN 7280	Entrepreneurial Finance and Venture Capital	
FIN 7290	Topics in Finance	
FIN 7340	Futures and Options	
FIN 7090	Money and Capital Markets	
FIN 7870	International Finance	
FIN 7900	Mergers and Acquisitions	
FIN 7990	Portfolio Management/Student Managed Investment Fund (SMIF)	
<b>Total Credits</b>		<b>9</b>

## Global Supply Chain Management Concentration

Code	Title	Credits
GSC 7620	Global Logistics Management	3
GSC 7650	Strategic Procurement	3
Select one of the following:		3
ACC 7148	ERP Systems and Business Integration	
GSC 7000	Consultative Analysis and Executive Presentation	
GSC 7010	Manufacturing and Supply Chain Analytics or DSB 6200 Manufacturing & Supply Chain Analytics	
GSC 7100	Study Abroad	
GSC 7670	Special Topics in Supply Chain Management	
GSC 7680	Manufacturing Planning and Control	
GSC 7920	Supply Chain Process Analysis and Costing	
GSC 7930	Customs Administration and High Tech Purchasing	

GSC 7960	Lean Six Sigma	
GSC 7980	Healthcare Supply Chain Management	
GSC 7991	Principles of Quality Management	
MKT 7950	Business and Sustainability or MGT 7950 Business and Sustainability	
<b>Total Credits</b>		<b>9</b>

## Healthcare Supply Chain

Students must complete at least three courses from the following.

Code	Title	Credits
GSC 7960	Lean Six Sigma	3
GSC 7980	Healthcare Supply Chain Management	3
Select one of the following:		3
ACC 7148	ERP Systems and Business Integration	
GSC 7000	Consultative Analysis and Executive Presentation	
GSC 7010	Manufacturing and Supply Chain Analytics or DSB 6200 Manufacturing & Supply Chain Analytics	
GSC 7100	Study Abroad	
GSC 7620	Global Logistics Management	
GSC 7650	Strategic Procurement	
GSC 7670	Special Topics in Supply Chain Management	
GSC 7920	Supply Chain Process Analysis and Costing	
GSC 7930	Customs Administration and High Tech Purchasing	
GSC 7991	Principles of Quality Management	
<b>Total Credits</b>		<b>9</b>

## Human Resources Management Concentration

Code	Title	Credits
MGT 7640	Management of Human Resources	3
Select two of the following (ELR are Employment and Labor Relations courses):		6
ELR 7010	Health Care, Retirement, and Employee Benefit Plans	
ELR 7450	Employment Relations Law in North America	
MGT 7650	Strategic Human Resource Management	
MGT 7730	People Analytics	
MGT 7750	Managing Employee Relations	
MGT 7780	Workplace Negotiations	
<b>Total Credits</b>		<b>9</b>

## International Business Concentration

Code	Title	Credits
MKT 7460	International Business	3
MKT 7500	International Marketing Strategy	3
Select one of the following:		3
GSC 7620	Global Logistics Management	
FIN 7870	International Finance	
MKT 7950	Business and Sustainability or MGT 7950 Business and Sustainability	
<b>Total Credits</b>		<b>9</b>

## Management Concentration

Code	Title	Credits
Select at least three of the following:		9
MGT 7620	Complex Organizations	
MGT 7630	Organizational Change and Development	
MGT 7640	Management of Human Resources	
MGT 7660	Entrepreneurial Management	
or EI 7000	Introduction to Entrepreneurship and Innovation	
MGT 7730	People Analytics	
MGT 7780	Workplace Negotiations	
MGT 7815	Strategic Leadership	
MGT 7816	Leading Self and Others	
MGT 7850	Management through Constructive Persuasion	
MGT/TIS 7900	Project Management	
MGT/MKT 7950	Business and Sustainability	
MGT 8000	Seminar in Management	
<b>Total Credits</b>		<b>9</b>

## Marketing Concentration

Code	Title	Credits
MKT 7450	Business Research and Methodology	3
MKT 7470	Consumer and Industrial Buying Behavior	3
Select one of the following:		3
EI 7600	Marketing New Ventures	
MKT 7150	Global Automotive Marketing Strategy	
MKT 7430	Advertising Management	
MKT 7460	International Business	
MKT 7500	International Marketing Strategy	
MKT 7700	Management of Retail Enterprises	
MKT 7860	Social Media and Digital Marketing Analytics	
MKT 7950	Business and Sustainability	
<b>Total Credits</b>		<b>9</b>

## Sport and Entertainment Management

Code	Title	Credits
SEM 7100	Sport & Entertainment Management	3
Select at least two of the following:		6
SEM 7110	Sport & Entertainment Marketing Communications	
SEM 7120	Event Planning and Management	
SEM 7130	Managerial Finance in Sport & Entertainment	
SEM 7140	Sports & Entertainment Economics	
SEM 7995	Directed Study in Sport and Entertainment Management	
SEM 8000	Special Topics in Sport and Entertainment Management	
<b>Total Credits</b>		<b>9</b>

## Technology, Information Systems and Analysis Concentration

Code	Title	Credits
Select at least three of the following:		9
ACC 7148	ERP Systems and Business Integration	
TIS/ACC 7290	Blockchain: An Accounting and Business Perspective	
TIS 7510	Database Management	

TIS 7520	Information Systems Design	
TIS 7530	Societal and Ethical Issues in the Information Age	
TIS 7560	Survey of E-Commerce	
TIS 7570	Advanced Business Analytics	
TIS 7575	Corporate Computer Networks and IT Security	
TIS/MGT 7900	Project Management	
TIS 7996	Principles for Customer Relationship Management	
TIS 8000	Seminar in Information Systems and Management	
<b>Total Credits</b>		<b>9</b>

# Business Administration and Accounting (M.B.A./M.S.A.)

The joint M.B.A./M.S.A. program offers students the opportunity to obtain two degrees with a significant reductions compared to the credits required for pursuing both degrees separately. The enhanced efficiency not only lowers the overall tuition costs but also accelerates the time needed to earn both degrees. The joint M.B.A./M.S.A. degree program is designed to equip future managers with essential accounting tools and techniques to make informed managerial decisions. Additionally, this program introduces new career prospects in accounting filed for M.B.A. students.

To earn both the M.B.A. and M.S.A. degrees, students must successfully complete a minimum of 54 total credits. Students lacking a sufficient accounting background may be required to complete additional foundation courses. The joint degree program may confer diplomas either sequentially or simultaneously, depending on the student's preference and academic progress. All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the Mike Ilitch School of Business (p. 71) governing graduate scholarship and degrees.

A total of 12 credits from the below list may be applied to both programs:

Code	Title	Credits
BA 7000	Managerial Accounting	3
ACC 7100	Financial Accounting for Decision Making	3
ACC 7120	Introduction to Taxation: Individuals	3
ACC 7145	Accounting Systems: Design and Controls	3
ACC 7180	Auditing	3
ACC 7188	Governmental and Not-for-Profit Accounting	3

# Business Administration and Law (M.B.A./J.D. Joint Degree)

Joint degree programs are those in which credit for some courses may be applied to both degrees. The Joint M.B.A./J.D. Program leads to the receipt of both the Master of Business Administration (M.B.A.) degree from the Mike Ilitch School of Business and the Juris Doctor (J.D.) degree from the Law School. The joint program allows students to fulfill the requirements of both programs concurrently. Students will need to complete all the requirements for both degrees, but Law School courses may count for up to nine elective credits toward the M.B.A. degree.

Applicants to this program must apply to both the Law School J.D. program and the Mike Ilitch School of Business M.B.A. program. Admission to the Concurrent M.B.A./J.D. Program requires separate approval by both the Law School and the Mike Ilitch School of Business. Students must meet all admission requirements of both programs; be admitted to both programs; and obtain the separate approval of both units to participate in the concurrent degree program.

Students seeking admission into the Joint M.B.A./J.D. program may use their Law School Admission Test (LSAT) score for M.B.A. admission consideration, as long as the student makes it clear at the time of application that they would like to pursue this option. Otherwise, the student must take the Graduate Management Admission Test (GMAT) and submit that score for M.B.A. admission consideration. If the student is a current J.D. student within their first year of law school, the student may apply for the Joint M.B.A./J.D. program using the University Graduate Change of Status form and submitting all required application documents.

The MBA program requires that the candidate achieve a cumulative grade point average of at least a 3.0 on all course work counting toward the dual JD/MBA program. The first year of study is spent in the Law School; after completion of the first year, students may elect one Business School course per semester, with a maximum of four M.B.A. graduate courses applicable toward the J.D. degree.

The following foundation courses are open only to students who have been formally admitted to a graduate program at Wayne State University – undergraduate, post-baccalaureate, and non-matriculated students are not eligible. (Analogous courses offered at the undergraduate level may be taken to satisfy Foundation Requirements prior to graduate admission. However, once a student has been formally admitted to the M.B.A. program, NO graduate credit shall be allowed for subsequent registrations in undergraduate courses analogous to the Graduate Foundation Requirements without approval of the Graduate Committee or its designee. Information regarding such courses is available in the Graduate Programs Office, 2771 Woodward Avenue, Suite 137.) A cumulative grade point average of 3.00 ('B') is required for foundation requirements and no individual grade below 2.0 ('C') is acceptable. **All foundation requirements must be completed before a student begins core and elective courses.**

Code	Title	Credits
BA 6000	Introduction to Accounting and Financial Reporting	
BA 6005	Basics of Financial Management	
BA 6015	Marketing Foundations	
BA 6020	Contemporary Principles of Management	

The following nine core courses are required of all students:

Code	Title	Credits
BA 7000	Managerial Accounting	
BA 7010	Global Operations and Supply Chain Management	
BA 7020	Corporate Financial Management	
BA 7030	Business Analytics	
BA 7040	Managing Organizational Behavior	
BA 7050	Marketing Strategy	
BA 7060	Understanding Emerging Technologies	
BA 7070	Social Perspectives on the Business Enterprise	
BA 7080	Strategic Management	

Students are eligible to apply a maximum of nine J.D. credits as M.B.A. elective credit, provided the following conditions are met:

1. The law school courses to be applied to the M.B.A. must be taken at the Wayne State University Law School, as part of the J.D. program;
2. Passed/Not Passed credit is acceptable only for LEX 8631 and LEX 8633;
3. The courses must be relevant to the student's Plan of Work as approved by the Graduate Committee;
4. The courses may not be more than five years old at the time of graduation;
5. The Law courses which will be considered for dual applicability are:

Code	Title	Credits
LEX 6200	Contracts A	3
LEX 6201	Contracts B	3
LEX 7014	Taxation of Corporations: Acquisitions and Restructuring	4
LEX 7026	Antitrust	2-4
LEX 7060	Business Planning	4
LEX 7128	Consumer Law	2-3
LEX 7141	Corporate Finance	3
LEX 7156	Corporations	2-4
LEX 7221	Employment Law	2-3
LEX 7353	Health Care Organizations and Finance	3
LEX 7404	International Business Transactions	3
LEX 7603	Mergers and Acquisitions	2-3
LEX 7831	Trademarks and Unfair Competition	2-3
LEX 8631	Business and Community Law Clinic	6
LEX 8633	Business and Community Law Clinic (Advanced)	2

6. If a Joint M.B.A./J.D. student would like to apply a J.D. course to the M.B.A. that is not listed above, the student must petition in writing to the Graduate Committee for dual application of credit.

## Business Administration (Ph.D.)

The Doctor of Philosophy in Business prepares persons interested in careers in research and university teaching. The core goals for the program are the creation of new knowledge through research and excellence in teaching. The Ph.D. program offers specialized tracks in finance, management, and marketing. For detailed information, please visit the Mike Ilitch School of Business (<http://ilitchbusiness.wayne.edu/>).

## Admission Requirements

Admission to any graduate program is contingent upon admission to the Graduate School (p. 21). In addition, applicants to the Ph.D. program must comply with the following:

1. hold a bachelor's degree with a grade point average of at least 3.0, or 3.5 upper division (junior or senior), or a graduate degree g.p.a. of 3.5;
2. score at least a 600 on the Graduate Management Admissions Test (Attainment of satisfactory GMAT score and GPA does not guarantee admission);
3. provide at least three letters of recommendation from officials or faculty at the institution(s) most recently attended, or by a recent employer of the applicant;
4. submit a brief essay (not to exceed four pages) by the applicant on his or her career objectives.
5. Applicants from other countries must demonstrate English proficiency by obtaining at least a 550/213/79 on the Test of English as a Foreign Language.

## Program Requirements

Ph.D. students in Business Administration must successfully complete at least ninety credits of graduate study, consisting of at least sixty credits of course work and thirty credits in dissertation research. The program must include at least thirty credits (excluding dissertation direction) in courses numbered 7000 or above, or as approved by the students advisor and the Ph.D. program director. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the Mike Ilitch School of Business (p. 71) governing graduate scholarship and degrees.

All Business School Ph.D. students must complete:

Code	Title	Credits
BA 8777	Professional Development Seminar for Business Doctoral Students	1-3
BA 8900	Development of Effective Research Programs in Business	3

All Finance Track students must complete:

Code	Title	Credits
BA 8120	Theory of Finance	3
BA 8121	Seminar in Corporate Finance	3
BA 8122	Empirical Methods in Finance	3
BA 8123	Seminar in Corporate Governance	3

All Management Track students must complete:

Code	Title	Credits
BA 8220	Seminar in Organizational Behavior	3
BA 8221	Seminar in Strategic Management	3
BA 8420	Seminar in Organizational Theory	3

All Marketing Track students must complete:

Code	Title	Credits
BA 8050	Seminar in Marketing Theory	3
BA 8054	Seminar in Marketing Strategy	3
BA 8058	Advanced Topics in Consumer Behavior	3

Upon completion of fifty credits of the course work, students must take written and oral qualifying examinations. The qualifying examinations require of students critical analysis of the state of research and knowledge in their substantive areas. In addition, they must demonstrate the reflective presentation of innovations in perspectives, theory, knowledge, and research design, methods and strategies that will advance practice and create new knowledge in their chosen areas.

Students advance to Ph.D. Candidacy after successful completion of both written and oral qualifying exams. Ph.D. Candidacy begins the dissertation preparation phase of the degree. Four consecutive academic-year semesters of registration as a degree candidate are required during the preparation of the dissertation. The thirty-credit dissertation registration requirement is fulfilled by registering for courses BA 9991, BA 9992, BA 9993, BA 9994 (Doctoral Research and Direction I, II, III, IV, respectively), in consecutive academic year semesters. Students should consult Graduate School regulations governing doctoral study (p. ).

## Business (Graduate Certificate)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants must have earned a minimum g.p.a. of 3.0 in their undergraduate/graduate program. Applicants who already have a business or related degree are not eligible.

### Program Requirements

The Graduate Certificate in Business is designed to provide non-business undergraduates fundamental knowledge in the basic functional areas of business administration: accounting, finance, management, and marketing.

The Certificate program requires successful completion of five courses, chosen from the following:

Code	Title	Credits
<b>Functional Basics</b>		
BA 6000	Introduction to Accounting and Financial Reporting	3
BA 6005	Basics of Financial Management	3
BA 6015	Marketing Foundations	2
BA 6020	Contemporary Principles of Management	2
<b>Functional Electives</b>		
Select one of the following courses:		3
BA 7000	Managerial Accounting	
BA 7020	Corporate Financial Management	
BA 7040	Managing Organizational Behavior	
BA 7070	Social Perspectives on the Business Enterprise	
TIS 7505	Information Analytics: Inbound Information Technology	
<b>Total Credits</b>		<b>13</b>



# Data-Driven Business (M.S. in Data Science and Business Analytics)

Analytics is a fast-growing STEM field with a high demand for individuals who possess the skills and expertise necessary to navigate the process of transforming data into insight for making sound business decisions. It's the reason that the WSU College of Engineering and the Mike Ilitch School of Business launched an innovative and interdisciplinary new master's program in data science and business analytics. Leaders in this field use data to fundamentally rethink all facets of business in many sectors, including manufacturing, supply chain, finance, and healthcare.

## Admission Requirements

Admission to any graduate program is contingent upon admission to the Graduate School (p. 21). Applicants should have 3.0 or higher cumulative undergraduate g.p.a.

## Prerequisite Knowledge

Candidates are expected to well-versed in basic probability and statistics and also familiar with some programming language. Courses will be available in the summer months for admitted applicants to refresh their knowledge or makeup for any deficiency in this knowledge.

Students without this prerequisite knowledge but otherwise possess good credentials will be given conditional admission and have to take this remedial coursework in the summer months prior to starting the program in the fall term

## Program Requirements

Students must complete a total of 30 credits in order to earn the M.S. in Data Science and Business Analytics with a major in Data Driven Business.

The "interdisciplinary core" includes 9 credits of coursework across business, computer science, and industrial engineering. On top of this integrated breadth of study covering the core areas of data science and business analytics, each student has 9 credits of major courses to give them depth in an engineering, business, or analytics area. Each student's 6 credits of elective choices can be personalized to support their individual career goals. The final piece of the curriculum is a 6-credit applied analytics practicum, in which students will work with companies and organizations on real analytics problems.

Code	Title	Credits
<b>Module 1: Core Courses</b>		
DSB 6000	Data Science Strategy & Leadership	3
DSA 6000	Data Science and Analytics	3
DSE 6000	Computing Platforms for Data Science	3
<b>Module 2: Major Courses</b>		
DSB 6100	Marketing Analytics	3
DSB 6200	Manufacturing & Supply Chain Analytics	3
CSC 5800	Intelligent Systems: Algorithms and Tools	3
or CSC 5825	Introduction to Machine Learning and Applications	
or IE 7860	Intelligent Analytics	
<b>Module 3: Electives</b>		
Elective courses can come from other tracks of the Data Science & Business Analytics program or from outside the program.		6
<b>Module 4: Applied Analytics Practicum</b>		
DSB 7500	Data Science and Analytics Practicum	6
<b>Total Credits</b>		<b>30</b>

All course work must be completed in accordance with the regulations of the Graduate School and the Mike Ilitch School of Business governing graduate scholarship and degrees; see the sections beginning under Academic Regulations (p. 24) and Academic Regulations for the Mike Ilitch School of Business (p. 71), respectively.

# Entrepreneurship and Innovation (Graduate Certificate)

## Program Overview

The entrepreneurship and innovation certificate program provides insights and practical experience for both current and future for-profit and not-for-profit professionals working in a wide range of settings, including business, engineering, science and technology, health care, the arts, sports and entertainment, communication and information technology, manufacturing, and community and economic development. This cross-disciplinary certificate program has been designed to provide you with the specialized knowledge, skills and experience required to develop, launch and grow a new venture. The courses offered are developed and provided in collaboration with other Wayne State University schools and colleges, and many classes can satisfy the requirements of both your degree program and the certificate program.

Students who participate in the Entrepreneurship and Innovation Certificate program are eligible to apply for support from the Belinsky Entrepreneurial Learning Laboratory (BELL). The BELL assists sustainable, investment-ready student startups and supports the development of commercialization pathways for WSU intellectual property by providing mentors and subject matter experts, direct support and limited funding to assist in the process of attracting additional funding in the form of revenue growth, grants, loans or direct investment. Direct support is provided by BELL Fellows, and certificate program students are eligible to apply for these fellowships. Contact the program director for further information.

## Admission Requirements

The graduate certificate in entrepreneurship and innovation is open only to those students who can meet the graduate admission requirements of Wayne State University. Further, those admitted to this certificate program are: 1) currently enrolled WSU graduate students who have completed at least 6 graduate credit hours and have a cumulative grade point average of 3.0 or above; or 2) students who possess a graduate degree from an accredited college or university. Students must also successfully complete an introductory course and gain approval for their elective selection and plan of work. Students can develop a full plan of work with the program advisor before registering for the introductory course, and are strongly encouraged to do so.

Formal admission to the certificate program requires that students complete an introductory course and obtain approval for their plan of work which includes three elective courses and a capstone course. Students can develop a full plan of work with the program advisor before registering for the introductory course and are strongly encouraged to do so.

The introductory course provides an integrative framework, processes and tools which must be mastered and opportunities to explore resources available within the local entrepreneurial ecosystem. The elective courses are matched to student talents and interests and provide opportunities to acquire additional breadth and depth of knowledge, skills and abilities and opportunities for additional applications of the integrative framework, processes and tools. In the capstone course students are engaged in a project-intensive learning experience in the Detroit entrepreneurial ecosystem. The capstone course is designed to help the student deepen their understanding of and appreciation for what it takes to translate ideas into reality and provides students an opportunity to celebrate and reflect on their passion and ability to launch and support startups of both a technical and non-technical nature.

## Program Standards

- A minimum cumulative GPA of 3.0 will be required for completion of the certificate, with no grades less than a B in each of the core courses.
- Although students are encouraged to complete the certificate in three consecutive semesters, it must be completed within three years of admission. Students may enroll on a full- or part-time basis.
- The certificate will be awarded upon completion of the related graduate program. Or, if the student already has been awarded the graduate degree, the certificate will be awarded upon completion of the certificate program.
- Up to 9 of the credit hours of coursework taken toward this graduate certificate may also be used to satisfy graduate degree requirements, assuming no credits have been applied from a second certificate and also subject to the approval of the relevant academic unit and graduate office.
- The credits earned while completing this certificate program cannot be applied toward another Wayne State University certificate program.
- Credits applied to a graduate certificate cannot be applied toward a subsequent Wayne State University graduate degree.
- No transfer credit will be accepted.

## Curriculum Requirements

The student must complete 15 credits, with six credits from the core, and nine elective credits selected from an approved list. Electives which will count toward the completion of the certificate program are open to students who have satisfactorily completed the introductory course and who have been admitted to the program. Students must complete 12 approved credits before enrolling in the capstone course. Students must contact the Program Director at least one month prior to registering for the capstone course so that the details of the Capstone Project can be determined.

### Required Core Courses (6 credits)

Code	Title	Credits
EI 7000	Introduction to Entrepreneurship and Innovation	3
or MGT 7660	Entrepreneurial Management	
EI 7900	Entrepreneurship and Innovation Capstone <sup>1</sup>	3

<sup>1</sup> Approval to take EI 7900 requires completion of nine (9) credits of electives with a minimum grade of C in addition to EI 7000 with a minimum grade of B.

### Electives (9 credits)

Three elective courses are also required. A subset of the list of elective courses (free-elective courses) will carry no pre-requisite beyond EI 7000, thereby broadening accessibility to non-business students. The list of approved elective courses will also include restricted-electives, courses which may require completion of discipline-specific course prerequisites. Restricted-elective courses must meet the following criteria: (1) the course learning objectives, content and activities must be explicitly and substantially correlated with the GCEI program learning goals; (2) the course incorporates one or more of the foundation framework elements and/or skill and tool kit components; (3) the student has satisfied pre-requisites for these courses; (4) the student completes these courses after having been admitted to the certificate program; and (5) the credits earned in these courses must also satisfy the degree requirements of the student's graduate degree program.

*Note: The list of elective courses will be updated periodically subject to the review and approval of the curriculum committee of the Entrepreneurship and Innovation program and its advisory board.*

Code	Title	Credits
<b>Free Electives (3 credits each)</b>		
EI 7400	Management and Leadership for Entrepreneurs	
EI 7600	Marketing New Ventures	
EI 7800	Special Topics in Entrepreneurship and Innovation	
EI 7850	Directed Study in Entrepreneurship and Innovation	
FIN 7200	Startup Financing and Profitability	
SW 7095	Social Entrepreneurship	
<b>Restricted-elective courses (3 credits each unless otherwise noted; prerequisites may apply)</b>		
FIN 7270	Entrepreneurs' Ecosystem	
FIN 7280	Entrepreneurial Finance and Venture Capital	
GSC 7620	Global Logistics Management	
IE 6405	Integrated Product Development	
IE 6425	Product Lifecycle Management and Sustainable Design	
IE 6830	Management of Technology Change	
IE 6850	Manufacturing Strategies	
IE 7999	Engineering Management Leadership Project	
MGT 7700	Leadership and Management of Innovation and Technology	
MKT 7860	Social Media and Digital Marketing Analytics	
MKT 7950	Business and Sustainability	
TIS 7505	Information Analytics: Inbound Information Technology	
TIS 7560	Survey of E-Commerce	
TIS 7994	Digital Content Development	
TIS 7996	Principles for Customer Relationship Management	

## Finance (M.S.)

### Admission Requirements

Admissions into the Master of Science in Finance program is contingent upon admission to the Wayne State University Graduate School (p. 21). In addition, applicants must meet the following requirements:

- GMAT
  - *The GMAT requirement can be waived, if you meet the following criteria:*
    - An acceptable score on the Graduate Record Examinations (GRE), Law School Admission Test (LSAT), or Medical College Admission Test (MCAT) entrance exam.
    - GPA of 3.3 or higher from an AACSB-accredited business program.
    - GPA of 3.3 or higher from a regionally accredited university in any major.
    - A minimum 3.0 GPA and at least three years of relevant professional experience that shows increased responsibility over that period.
    - You have passed level one of the CFA exams.
    - GPA of 3.0 or higher in a major in Engineering, Physics or Mathematics.
- Overall undergraduate GPA of 2.75, with a 3.0 major GPA (on a 4.0 scale).
- Submit a copy of your professional resume (should include start and end dates for each position held).
- Three letters of recommendation from professors or employers.

### Program Requirements

The M.S. Finance (M.S.F.) program requires a total of 30 credit hours. Up to six transfer credits from previous equivalent graduate coursework can be applied to the degree if those credits have not been counted toward another degree, are from an AACSB accredited institution, are equivalent substitutes, have a B grade or better and are not older than 6 years.

Students can pursue the M.S.F. full time or part time. Students must complete the program within six years.

A minimum cumulative grade point average (GPA) of 3.0 or greater is required for graduation. A maximum of two courses in which a C grade has been received may be used to meet graduation requirements, provided this is offset by sufficient A grades to maintain the required 3.0 GPA.

The M.S.F. curriculum will provide the student with a solid foundation for the Chartered Financial Analyst (CFA) level one exam and will prepare them for a variety of financial roles. There are three phases of course work required:

- Foundation
- Core
- Electives

### Foundation Requirements

Before progressing to the core courses of the program, students should possess a solid foundation in finance, accounting, statistics and mathematics as comprised by the following set of courses:

Code	Title	Credits
BA 2300	Quantitative Methods I: Probability and Statistical Inference	3

BA 6000	Introduction to Accounting and Financial Reporting	3
BA 6005	Basics of Financial Management	3
MAT 2010	Calculus I	4

If the applicant's business administration, finance or accounting degree is from a college or university located outside of the United States, some or all of the foundation requirements may not be waived because U.S. generally accepted accounting principles (US GAAP) may not have been studied.

## Core

Core courses form the backbone of the M.S.F. program, providing general analytical methods and technical tools that can be applied to a variety of sub-specialties in finance.

Code	Title	Credits
ACC 7100	Financial Accounting for Decision Making	
BA 7020	Corporate Financial Management	
FIN 7000	Applied Financial Analysis	
FIN 7025	Quantitative Methods in Finance	
FIN 7035	Data Analytics in Finance	
FIN 7090	Money and Capital Markets	
FIN 7230	Investment Policies	

## Electives

Please select three courses (9 credits) from the available elective courses:

Code	Title	Credits
FIN 7030	Fixed Income Securities	
FIN 7040	Artificial Intelligence and Machine Learning for Finance	
FIN 7220	Advanced Managerial Finance	
FIN 7250	Financial Technology	
FIN 7270	Entrepreneurs' Ecosystem	
FIN 7280	Entrepreneurial Finance and Venture Capital	
FIN 7290	Topics in Finance	
FIN 7340	Futures and Options	
FIN 7870	International Finance	
FIN 7890	Internship in Finance	
FIN 7900	Mergers and Acquisitions	
FIN 7990	Portfolio Management/Student Managed Investment Fund (SMIF)	
FIN 7995	Directed Study	

# Organizational Leadership (M.S.O.L.)

The Master of Science in Organizational Leadership program is an online program that hones the leadership competencies needed to successfully lead in today's virtual, uncertain, and complex work environments. The program aims to inspire and equip current and future leaders to excel in a continually evolving and diverse organizational environment by delivering a rigorous evidence-based curriculum, exposure to industry experts' insights and perspectives, and application-driven learning. The curriculum provides students with essential leadership competencies, allowing them to customize their learning experience to their unique development needs and career goals. The target population for this program is aspiring, emerging, and mid-level leaders from all backgrounds who have a bachelor's degree from a higher education institute. Individuals working for profit, nonprofit and public sectors, entrepreneurs, and individuals changing careers will find value in this program regardless of the industry. It is recommended for individuals with at least two years of professional work experience seeking to enhance their leadership skills and advance their leadership careers.

Admission to any graduate program is contingent upon admission to the Graduate School (p. 21).

The Master of Science in Organizational Leadership is a 30-credit Plan C (coursework only). The program's curriculum is designed to give students an in-depth understanding of core and advanced leadership competencies for aspiring, emerging, and mid-level leaders. Both full-time and part-time program options are available. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the Mike Ilitch School of Business (p. 71) governing graduate scholarship and degrees.

Code	Title	Credits
<b>Core Courses</b>		
BA 7040	Managing Organizational Behavior	3
BA 7070	Social Perspectives on the Business Enterprise	3
MGT 7815	Strategic Leadership	3
MGT 7816	Leading Self and Others	3
<b>Elective Courses *</b>		
Select six courses from the following list. The concentrations require 18 completion of three associated courses.		
Strategic Thinking and Decision Making		
MGT 7620	Complex Organizations	
MGT 7630	Organizational Change and Development	
MGT 7650	Strategic Human Resource Management	
MGT 7730	People Analytics	
MGT 7900	Project Management	
MGT 7950	Business and Sustainability	
Communication and Influence		
MGT 7630	Organizational Change and Development	
MGT 7780	Workplace Negotiations	
MGT 7850	Management through Constructive Persuasion	
MGT 8000	Seminar in Management	
Leading a Diverse and Inclusive Workplace		
MGT 7640	Management of Human Resources	
MGT 7650	Strategic Human Resource Management	
MGT 7730	People Analytics	
MGT 7750	Managing Employee Relations	
MGT 7780	Workplace Negotiations	

MGT 8000	Seminar in Management
<b>Total Credits</b>	<b>30</b>

\* Elective courses cannot be taken until students complete BA 7040 and BA 7070. Elective courses can be taken concurrently with permission by the department.



# College of Education

Dean: Denise Taliaferro Baszile

The College of Education at Wayne State University is located in, and serves the needs of, one of the nation's largest metropolitan areas. Thus, the College reflects the dynamic character of urban life, and, in its concern with urban problems, places great faith in education as the means by which human circumstances can be improved. To this end, the College prepares professional educators who have the commitment and competence to help young people achieve dignity, preserve individuality, develop democratic values, and find self-fulfillment.

As society has been altered by such factors as the development of knowledge, technological advances and population growth, the purposes and processes of education have changed. New technologies of instruction are evolving rapidly and offer the educator many opportunities for developing a high level of competence. Problems generated in our urban society are complex, and those related to education are no exception. Yet, the opportunities for curriculum innovation, experimentation and leadership have never been greater.

## Accreditation

The College of Education's teacher certification programs are accredited by the Council for the Accreditation of Educator Preparation (CAEP).

Art Therapy is approved by the American Art Therapy Association (AATA).

Counselor Education is accredited through the Council for Accreditation of Counseling and Related Educational Programs (CACREP) and now includes Rehabilitation Counseling and Community Inclusion, which was formerly accredited through the Council on Rehabilitation Education (CORE). CORE and CACREP have merged.

School and Community Psychology is accredited through the National Association of School Psychologists.

# Academic Regulations for the College of Education

For complete information regarding the academic rules and regulations of the University, students should consult the Graduate School (p. 24). The following additions and amendments pertain to the College of Education.

## Financial Aid and Scholarships

Over 100 scholarships established by private donors are available through the College of Education. A number of them are targeted toward graduate students, all require a cumulative g.p.a. of at least 3.0, and all are awarded to applicants who demonstrate high academic achievement and leadership potential. Most, though not all, are also based on financial need. Application materials are available on the College of Education's website (<http://coe.wayne.edu/student/scholarship.php>). Review the website for more information and for the specific deadline date.

## Normal Program Load

*A full-time graduate student load is eight credits per semester in Fall and Winter and is limited without exception to a sixteen credit maximum by the Graduate School. In Spring/Summer full-time is two credits.* If a significant portion of a student's time is spent in outside work, corresponding adjustments must be made in the college schedule. A graduate student working full-time who desires to carry more than eight credits must secure permission from the Assistant Dean for Academic Services, who serves as Graduate Director.

## Attendance

Regularity in attendance and performance is necessary for success in college work. Although there are no officially excused absences as defined by College policy, the conscientious student is expected to explain absences to the instructor. Such absences may be due to illness; to participation in inter-college activities, certified by the sponsoring faculty member; or other similar types of absence for which the student can present to the instructor evidence that he/she was engaged in authorized University activities. Each instructor, at the beginning of the course, will announce his/her attendance requirements.

## Probation and Withdrawal

If, at any time, a graduate student's scholastic grade point average falls below 3.0, the student is automatically placed on probation. A student on probation must submit a plan of action completed with their advisor to the Graduate Director of the College of Education. The plan of action addresses the necessary steps and timeline for the student to regain good academic standing and identifies the coursework to be repeated or new coursework necessary to achieve good academic standing. The plan of action must be approved by the Graduate Director before registering for subsequent work in the College. The College reserves the right to ask a student to withdraw at any time from specific courses or from the College entirely, if progress does not warrant continuance.

## Readmission

Graduate students who have received a master's degree from Wayne State University and have not registered since the degree was conferred, and who desire to pursue further non-degree graduate work must complete a Returning Student Update Record form (<http://reg.wayne.edu/students/forms.php>).

## Criminal History Review

Students in certification or licensure programs must supply a criminal history check before admission or transfer to the College of Education, clinical experiences or internships, and when applying for licensure or certification. Criminal history checks must be completed through the Wayne State University portal from CastleBranch for a fee. A criminal history check remains valid for six months. Additional criminal history checks may be required at the discretion of the College.

Any person in a certification or licensure program who has been convicted of any offense must provide certified copies of all documents relative to his/her conviction, including the Judgement of Sentence or Register of Actions from the court(s) in which the matter was adjudicated and a narrative describing each incident from his/her perspective. Persons determined by the criminal history check process to have been convicted of any offense and do not provide the required documentation will have their admission or certification/licensure recommendation denied. In other cases, incomplete or non-submission of documentation may result in a program pause, removal from clinical experiences or internships, or exclusion from the College. After reviewing the documentation by College officials or the College's Criminal History Review Board, the applicant will be notified in writing of the decision.

Michigan Public Act 68 of 1993 Sec. 1230 requires public and nonpublic schools to conduct a criminal history check of new teachers, school administrators, school psychologists, and other personnel required to hold State Board of Education approvals.

Note the State Board of Education Teacher Certificate Code: R 390.1201 Certificates; denial, suspension, or revocation.

1. The superintendent of public instruction may refuse to grant or renew, or may suspend for a fixed term, or revoke, or may impose reasonable conditions on, a teaching certificate or state board approval granted pursuant to these rules for the following reasons:
  - a. Fraud, or material misrepresentation, concealment or omission of fact in the application for, or the use of, a teaching certificate or state board approval.
  - b. Conviction of an offense listed in MCL 380.1535a or MCL 380.1539b.
2. The superintendent of public instruction may refuse to grant or renew a teaching certificate or a state board approval for failure or ineligibility of the applicant to meet the criteria for the applicable certification or state board approval.

## Graduation

Applications for graduate degrees, graduate certificates and the Education Specialist Certificate must be made not later than the fourth week of classes for the semester in which degree or certificate requirements are to be completed. Graduation deadline dates for the semester in which candidates are completing doctoral (Ed.D. and Ph.D.) degree requirements are established and posted online (<https://gradschool.wayne.edu/phd/deadlines-requirements/>) by the Graduate School.

Information concerning commencement announcements, caps and gowns, invitations, tickets, time and place, and other relevant information is posted by the Commencement Office (<http://commencement.wayne.edu/>). Candidates for doctoral degrees are requested and expected to attend the commencement ceremony at which the University confers upon them the degree earned. Graduate Certificate and Education Specialist Certificate students do not participate in the Commencement Ceremony, which is limited to degree-granting programs.

## Bulletin-in-Effect Policy Restriction

Teacher preparation programs must abide by all current requirements set forth by the Michigan Department of Education and other state, federal, and national requirements. As such, in accordance with Wayne State University policy, the Teacher Education Division (TED) restricts the extent to which *the Bulletin in Effect* policy can be utilized. In cases when the Bulletin in Effect policy is restricted due to required program closures, certification changes, etc., students will be notified and will be provided a timeline by which they must complete their current program.

## Time Limit for Candidate Certification Recommendation

Any candidate requesting Wayne State University's recommendation of his/her/their application for certification and/or endorsement *more than 24 months after program completion* must complete and submit to Wayne State University's College of Education an "Educator Credential Recommendation: Post-Time Limit Request"; this is separate and distinct from the application to MDE for certification and/or endorsement.

- A candidate may need to retake or complete additional coursework or current assessments in order to meet the current requirements of the educator credential he/she/they seeks.
- A candidate will not be considered for a recommendation unless the candidate documents that he/she/they meets the current MDE requirements of the credential for which he/she/they seek recommendation.

## Master's Degrees

### Master of Arts Degrees

The Master of Arts degrees offered by the College of Education are administered by the Division of Kinesiology, Health and Sport Studies, and by the Division of Theoretical and Behavioral Foundations. The generic degree requirements are listed below and specific requirements associated with individual majors and areas of concentration are described in the respective divisional sections.

### Master of Science Degrees

The Master of Science degrees offered by the College of Education are administered by the Division of Kinesiology, Health and Sport Studies and the Division of Theoretical and Behavioral Foundations. The generic degree requirements are listed below and specific requirements associated with individual majors and areas of concentration are described in the respective divisional sections.

### Master of Arts in Teaching Degrees

The Master of Arts in Teaching degree is administered by the Division of Teacher Education and upon program completion requires a recommendation to the Michigan Department of Education for a teaching certificate. The generic degree requirements are listed below and specific requirements associated with individual majors and areas of concentration are described in the respective divisional sections.

### Master of Education Degrees

The Master of Education degree is offered in various curricular areas administered by the following academic divisions: Administrative and Organizational Studies, Teacher Education and Theoretical and Behavioral Foundations. The generic degree requirements are listed below, and specific requirements associated with individual majors and areas of concentration are described in the respective divisional sections.

## Admission

Admission to these programs is contingent upon admission to the Graduate School (p. 21). In addition, applicants must satisfy program specific admission requirements.

Application information is available on the Graduate Admissions (<http://gradadmissions.wayne.edu/apply.php.html>) website.

## Degree Requirements

The minimum requirement for a Master's degree is thirty credits, at least twenty-four of which must be taken at the University. Some programs in the College of Education require more than the minimum, in which case those requirements take precedence. Major Requirements consist of a minimum of eight credits in the specialization selected by the student in addition to and when required the terminal seminar and thesis, essay, or project. Specific course requirements for the various majors are presented in the respective divisional sections.

Master's Degree are offered with the following options:

- **Plan A** – A minimum of twenty-two credits in coursework, plus eight credits for the terminal seminar and thesis
- **Plan B** – A minimum of twenty-seven credits in coursework, plus three credits for the terminal seminar and essay or project
- **Plan C** – A total of thirty credits, essay/project or thesis not required

**Electives** are those courses recommended outside the major. The purpose of elective courses is to provide breadth to the student's program.

See the individual programs in the following Divisional sections of this bulletin for specific courses required by certain program areas in the major, the general professional sequence, or the elective sections of Plans of Work.

## Plan of Work

After consultation with the advisor, the master's applicant prepares a Plan of Work for the program, setting forth the courses that will satisfy the requirements for the degree.

## Candidacy

This status is established upon completion by the master's applicant of nine credits toward degree requirements, and after filing an approved Plan of Work with the College Graduate Office, 489 Education Building. The Plan of Work **MUST** be filed prior to or during the term in which the applicant completes twelve graduate credits toward the degree. Failure to file a Plan of Work will preclude further registration for courses.

## Time Limitations

Requirements for all master's degrees must be completed within six years after completion of the first course to be applied toward the degree.

## Time Extensions

The advisor and student must complete a Request for a Time Extension form (<http://coe.wayne.edu/student/forms.php>) and set a terminal date for completion of all degree requirements, including such additional requirements as may be indicated by the Graduate Director to revalidate over-age credits (see the Revalidation section below). Time extensions require the approval of the Graduate Director. Time extensions to complete the requirements for a master's degree may not be granted beyond year 10 since admission.

## Revalidation

Upon the recommendation of the advisor and approval of the Graduate Director, a master's degree student may revalidate over-age credits which are between six and ten years old, and that represent courses completed at Wayne State University with grades of 'B' or better. Students are not permitted to revalidate credits earned at other institutions.

## General Professional Requirement for Master of Education Degrees: Fundamental Areas and Core Courses

Philosophical and theoretical perspectives unite the College of Education in its mission to prepare educators and other professionals as agents of change for an equitable, inclusive, global society that improves the lives of children, adults, families, and community.

This goal is achieved in the Masters of Education by emphasizing the following Fundamental Areas and/or Core Courses in education, performance improvement, health, and human development:

- Philosophical, historical, sociocultural, and political influences;
- Impact of ecological factors on human development, health, and well-being across the lifespan;
- Research, writing, and innovation.

Preparation includes the development of knowledge, skills, and dispositions and thus can be achieved through various means, such as

coursework, field experiences, research, and community engagement. Although these fundamental areas provide an overarching umbrella that unites the College, individual Divisions and Programs may articulate these philosophical and theoretical tenets in different ways.

All students in a Masters of Education program must meet the General Professional Requirement through completion of the following Fundamental Areas and/or through completion of Core Courses, which are listed below:

### Fundamental Areas

Philosophical, Historical, Sociocultural, and Political Influences include:

- Global/local education as social justice
- Knowledge of history and systems of discipline area and implications
- Issues of power and empowerment
- Perspectives on inclusive society
- Preparation for serving as an agent of change

Ecological Perspectives on Development, Health, and Wellbeing include:

- Psychology of learning across the lifespan
- Knowledge of human development, child/adolescent psychology
- Ecological influences on the quality of life issues

Research, Writing, and Innovation include:

- Methods of evaluation & research
- Critique of research

### Core Courses

In addition to the Fundamental Areas above, the General Professional Requirement is met through completion of professional Core Courses. The student must complete three courses from three different areas chosen from those listed below. Courses within a student's major area cannot be used to satisfy this requirement.

Code	Title	Credits
<b>Counseling</b>		
CED 6700	The Role of the Teacher in Guidance	2
<b>Educational Administration</b>		
EDA 7600	The Structure of American Education	2
<b>Educational Psychology</b>		
Select one of the following:		2-3
EDP 5450	Child Psychology	
EDP 5480	Adolescent Psychology	
EDP 7350	The Learning Process	
<b>Evaluation and Research</b>		
EER 7610	Evaluation and Measurement	2-3
<b>History and Philosophy of Education</b>		
EHP 7600	Philosophy of Education	2-3

## Post-Bachelor's Teaching Certificate

This program provides a means of obtaining teacher certification for those who do not intend to pursue the Master of Arts in Teaching. The program incorporates classroom theory with practice, requires a minimum of four semesters to complete and is available at both the elementary and secondary levels. Courses are typically offered during the day. Admission requires a baccalaureate degree with an appropriate coursework in a teaching major earned at a regionally accredited institution. Undergraduate course work should reflect a minimal 2.5 g.p.a., provide a current criminal background check from a College of Education approved vendor, provide documentation of a current TB test, a verification of group work with children and, for World Language majors/minors and Bilingual/Bicultural Education minors, appropriate language proficiency test results. A complete list of requirements can be found on the College of Education website (<https://education.wayne.edu/programs/post-bachelor/>).

## Education Specialist Certificate

The Education Specialist Certificate program is a thirty credit minimum curriculum beyond the master's degree. It is a self-contained concentration, separate from other existing programs, with a distinct form of recognition at its completion. This is a planned program, not merely recognition for thirty credits of graduate study accrued beyond the master's degree.

The Education Specialist Certificate is offered in various curricular areas administered by the following academic divisions:

- Administrative and Organizational Studies
- Teacher Education
- Theoretical and Behavioral Foundations

Specific requirements associated with individual majors and areas of concentration are presented in the Divisional sections

### Admission

Admission to this program is contingent upon admission to the Graduate School (p. 21). Minimum entrance requirements established by the College of Education are:

1. A master's degree from an accredited institution.
2. In general, applicants must present a grade point average of 2.75 or above for upper-division undergraduate work. Applicants with an undergraduate grade point average below 2.75 must have a grade point average of 3.4 or above on their master's degree work.
3. Fulfillment of the special requirements of the area of concentration in which the student wishes to work.
4. All major areas with the exception of administration and supervision, instructional technology and counseling require a minimum of three years of teaching experience or equivalent.

### Application

Application information is available on the Graduate Admissions (<http://gradadmissions.wayne.edu/apply.php.html>) website.

### Certificate Requirements

The Education Specialist Certificate program requires a minimum of thirty credits beyond the master's degree. The purpose of the Certificate program is to strengthen the liberal education of administrators, counselors, instructional designers and teachers to contribute to more effective productivity of professional workers in and outside the field of education. The specific content of each major is dependent upon the individual student's needs and interests.

### Plan of Work

Plans of Work are adapted to the professional needs of students and each one is developed by the individual student with the help of his/her advisor. A Plan of Work must be approved by the advisor and filed with the Education Graduate Office, 489 Education Building, before six credits have been completed following acceptance into the program. Failure to file a Plan of Work at the appropriate time may preclude further registration for courses.

Research studies, projects, or field studies may be accepted in partial fulfillment of requirements for the Certificate. Such projects will be in the nature of culminating experiences and arranged with the individual student's advisor.



## Time Limitations

Requirements for the Education Specialist Certificate must be completed within six years after admission to the program. Credit earned beyond the master's degree which is over six years old at the time of admission may not be applied toward meeting requirements of the certificate. Credit earned after acceptance as a certificate applicant may not be over six years old at the time the certificate is granted.

## Transfer Credit

A maximum of ten-semester credits of graduate post-master's degree work earned at another accredited university, or at Wayne State University *prior* to admission to the Education Specialist program, may be applied to the certificate provided the courses are approved by the advisor and the College Graduate Officer as appropriate to the program plan.

A maximum of six-semester credits of graduate post-master's degree work earned at another accredited university after admission to the Education Specialist program may be transferred and applied to the program provided no prior transfer credit from another university has been included in the program.

Coursework used toward a previously received degree, Graduate certificate, or Education Specialist certificate cannot be used toward the current Education Specialist certificate.

## Time Extensions

The advisor and student must complete a Request for a Time Extension form (<http://coe.wayne.edu/student/forms.php>) and set a terminal date for completion of all degree requirements, including such additional requirements as may be indicated by the Graduate Director to revalidate over-age credits (see the Revalidation section below). Time extensions require the approval of the Graduate Director. Time extensions to complete the requirements for a specialist certificate may not be granted beyond year 10 since admission.

## Revalidation

Upon the recommendation of the advisor and approval of the Graduate Director, a specialist certificate student may revalidate over-age credits which are between six and ten years old, and that represent courses completed at Wayne State University with grades of 'B' or better. Students are not permitted to revalidate credits earned at other institutions.

## Doctoral Degrees

The doctoral programs of the College of Education at Wayne State are designed to afford an opportunity for advanced study and research to persons who have demonstrated superior scholarship, promise in the field of research, and potential for professional leadership. Advanced graduate degrees are conferred not merely upon the completion of a prescribed number of courses, nor necessarily after a given period of residence; but, rather, in recognition of outstanding ability and high attainment in course work, examinations, research, scholarly writing, and personal fitness for the profession.

The Ed.D. degree is typically more application-oriented; the Ph.D. degree is more research-oriented. Ed.D. study includes the development of specialized practitioner skills; application of other educational foundations and techniques to a field; or applied research that primarily addresses localized practitioner problems. Ph.D. study includes theoretical foundations in the field; application of foundational or related disciplines; or research directed toward theory-building.

Doctoral degree programs are administered by the following academic divisions of the College:

- Administrative and Organizational Studies
- Kinesiology, Health and Sport Studies
- Teacher Education
- Theoretical and Behavioral Foundations

## Admission to Doctoral Programs

1. An undergraduate grade point average of 'B' or above (3.0 on a 4.0 point scale). Applicants with grade point averages of less than 3.0 for the baccalaureate must present evidence of superior academic achievement in a Master's Degree program (3.5 or above) before being considered for admission.
2. Admission to these programs is contingent upon admission to the Graduate School (p. 21). Application information is available on the Graduate Admissions (<http://gradadmissions.wayne.edu/apply.php.html>) website.

Specific admission requirements associated with individual majors and areas of concentration can be found in the respective divisional sections; generic degree requirements applicable to all Divisions are stated below.

## Doctor of Philosophy Requirements

The Doctor of Philosophy is available in the following majors: Counseling Psychology, Educational Leadership and Policy Studies, Educational Studies, Learning Design and Technology, and Kinesiology.

Ph.D. programs in the College of Education require a minimum of ninety graduate credits beyond the bachelor's degree. Of the minimum of ninety graduate credits, a minimum of twenty credits in coursework must be completed in the major field, including at least twenty-four credits of graduate work in Education. Thirty credits in dissertation research are required in the Ph.D. program. The thirty credit dissertation registration requirement is fulfilled by registering for the courses ED 9991, ED 9992, ED 9993, and ED 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. The remaining credits will be assigned to research or coursework in accordance with the needs of the students and the requirements in the field of concentration. A minimum of fifteen credits in research technique courses approved by the College's Doctoral Advisory Committee are required. A cognate in a field inside or outside the College of Education is optional at the discretion of the major advisor.

A Plan of Work, qualifying examinations, and a Final Public Lecture Presentation are required. Satisfactory completion of the full-time residency requirement must be certified by the advisor and the College graduate officer. For additional information, Ph.D. applicants should consult the Graduate School's Graduate Degree and Certificate Requirements (p. ). Also, please consult the College of Education Doctoral Policies and Procedures handbook ([https://education.wayne.edu/documents/revised\\_edd\\_phd\\_booklet\\_172\\_.pdf](https://education.wayne.edu/documents/revised_edd_phd_booklet_172_.pdf)) for further specific Ph.D. requirements.

## Doctor of Education Requirements for Educational Leadership and Policy Studies

### Credit Requirements and Time Limitation

The minimum credit requirement for the Ed.D is sixty-six credits in graduate work beyond the baccalaureate degree. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

All degree requirements must be completed within seven years from the time of admission as a doctoral applicant.

### Residence Requirement

At least twenty-five credits of course work beyond the master's degree and excluding dissertation research credit, must be taken in residence at Wayne State University.

The Ed.D. program requires the completion of six graduate credits in regular course work in each of two successive semesters after admission as an Ed.D. applicant. The residence requirement must be completed following admission to the Ed.D. program.

At least twenty-five credits exclusive of dissertation credit, must be taken in course work open only to graduate students (7000 course level or above).

### Research Methods

A minimum of ten credits is required in course work, approved by the College's Doctoral Advisory Committee, aimed at developing competence in statistics and research methodologies.

### Electives

Electives may be chosen with advisor approval.

### Concentrations (Major)

At least 15 credits of course work in the major is required.

### Cognates

A cognate in professional education or in a single field is optional at the discretion of the major advisor. Courses included in the cognate are approved by the advisor.

### Plan of Work

A Plan of Work must be filed and approved by the advisor and graduate officer during the semester in which the student is completing eighteen credits of work under advisement. Failure to file a Plan of Work may preclude further registration.

The Plan of Work must include twenty-five credits of Education course work.

## Candidacy

Candidacy is achieved when the dissertation prospectus receives final approval by the Graduate Director, which is preceded by approval by the Dissertation Advisory Committee through a proposal oral defense and approval by the Internal Review Board (when applicable).

## Selection of Advisor and Dissertation Advisory Committee

Students will be assigned an advisor at the time of admission. The advisor acts as the chairperson of the student's doctoral committee, which will consist of a minimum of three members: the advisor, one member representing the area of the concentration, and one member outside of the concentration area.

Two members of the committee, including the advisor, must hold a Regular Graduate Faculty Appointment. The committee must be fully constituted not later than the time the student begins active work on dissertation research or project. The main function of the doctoral committee is to advise the student in research activities and to administer the final defense. The dissertation committee chair assumes the responsibility for overseeing the procedures of the dissertation defense, serving as the advocate for the student and resolving conflicts.

## Dissertations

The doctoral student is required to submit a dissertation on a topic satisfactory to the doctoral committee. Ten credits are required in dissertation research (ED 9989). Prior to completion of the Qualifying Exam, students may register for up to two (2) credit hours. The balance of hours are completed after passing the Qualifying Exam. In each semester, registration must be completed prior to Census Day. All 10 semester hours of dissertation research must be registered prior to the Final Public Lecture-Presentation Defense.

## Final Written and Oral Examinations

Final written and oral examinations in the major field of concentration are required. Testing in the cognate is optional at the discretion of the major advisor. The exact times of these examinations are determined by the Graduate Officer. Students will register for the examinations with advisor approval. The committee must consist minimally of three graduate faculty members from the major department (faculty from the College of Education), at least two of whom hold a Regular Graduate Faculty Appointment valid through the completion of the Qualifying Examination period. The major advisor must be one of the two members with a valid Regular Graduate Faculty Appointment. When performance on a final examination is unsatisfactory, the student may request a re-examination which must be taken within one year of the date of the examination and after one semester has elapsed since the examination. The second examination shall be considered final.

## Final Public Lecture-Presentation Defense

A final oral examination on the dissertation is conducted by the student's doctoral committee under the auspices of the Education Graduate Office. Students must be registered the semester of the Final Defense. Students that have completed 10 semester hours of dissertation research may register for ED 9995, Candidate Maintenance Status.

## Annual Progress Reports

Annual Progress Reports are required and completed at the end of the winter semester (due by April 30). The annual review of student progress is an important cornerstone of quality training of doctoral students. An Annual Review from each year of the program is required when requesting a time extension.

## Time Extensions

Time Extensions may be granted to candidates in good standing with demonstrable progress towards completion of the dissertation. The request for a time extension must be made within six months of the original 7-year completion deadline and the student's dissertation proposal must have been approved prior to making the request. Students who have not completed the Ed.D. requirements within ten years of their application date are required to re-take the Final Qualifying Examination and may need to complete additional coursework to prepare for the examination. The total time for earning the Ed.D., including all time extensions and any required revalidation, is 12 years.

## Academic Services

*Office:* 489 Education; 313-577-1601

*Assistant Dean:* Paul W. Johnson

*Pre-Admission Graduate Advising:* LaSondra Dawn, Deborah Gibson, KaRie Jorah-Rood, Mary Waker

*Undergraduate Advising:* Fawne Allossery, Jeffrey Lisiecki, Kurt Troutman, Yan Chen

## Purposes of the Division

The Division of Academic Services in the College of Education is responsible for Undergraduate Advising, Graduate Admissions, Graduation & Certification, Curriculum: Course & Program Proposals, Course Scheduling & the Bulletin, Education Scholars Alliance Program, Rumble Fellowships, and Graduate Faculty Appointments.

## Advising Services

Advising in the College of Education is centralized for undergraduate students in the Division of Academic Services and decentralized for graduate students in the four academic divisions of the college: 1) Administrative and Organization Studies, 2) Kinesiology, Health and Sport Studies, 3) Theoretical and Behavioral Foundations, and 4) Teacher Education. Undergraduate students have professional advisors and graduate students are advised by faculty in the student's program. Every student admitted to the College of Education is assigned an advisor.

## Pre-Admission Graduate Advising

Academic Services provides pre-admission advising to students interested in graduate programs. Graduate advisors provide guidance with program selection, the satisfaction of admission requirements and completion of the graduate admission application.

## Graduate Student Services

- Degree and certificate audits for graduation.
- Recommendations to the Michigan Department of Education for certification and licensure (see the Certification section below).
- Requests for time extensions and monitoring of the university's academic probation system.

## Certification

As a liaison to the Michigan Department of Education, the Division of Academic Services recommends candidates for initial certification as teachers and administrators; approvals for supervisors and directors of Special Education; and licensure for school counselors.

# Administrative and Organizational Studies

Office: 341 Education Building; 313-577-1728

Interim Assistant Dean: William Hill

<https://education.wayne.edu/>

The Division of Administrative and Organizational Studies has as its primary goal the development and enhancement of leadership and organizational learning. It is within the scope of this division to study emergent trends, technologies and educational innovations; to develop rationales for supporting educational change; to present viable programs of study for advanced students in education which will enable them to function skillfully as educational leaders in facilitating change, and in developing and conducting on-going programs; and to design and implement learning innovations, and the impact of instructional methodologies on the improvement of human and organizational performance. The program areas — Educational Leadership and Policy Studies and Learning Design and Technology — are under the guidance of this Division.

## Educational Evaluation and Research Programs

Evaluation and Research offers concentrated programs for building careers and leadership positions in educational evaluation and statistics; computer applications; and research methodology.

Students who have already successfully achieved background, training, and experience in substantive disciplines of education and in non-education fields and who are interested in becoming more proficient in scientific inquiry, research strategies, evaluation and appraisal of studies, models and designs, and multivariate analysis, especially in conjunction with computer facilities, are afforded such opportunities in these programs. For optimum effective preparation, internships in research will be arranged upon request. The staff is available to students and faculty for consultation in research design and multivariate analysis.

Cooperative educational programs leading to training skills in Educational Evaluation and Research in Medical Education are also available. This specialized training is available in cooperation with selected faculty from the School of Medicine. Persons from the health sciences seeking educational research skills and persons from education backgrounds seeking health science education skills are brought together for their mutual growth

## Educational Leadership and Policy Studies Programs

In this area the College offers the Master of Education in Educational Leadership, an Educational Specialist Certificate program in Administration and Supervision, and Doctor of Education and Doctor of philosophy degrees with a major in Educational Leadership and policy Studies.

The Master of Education in Educational Leadership is designed for students seeking leadership roles, formal and informal, within the schools and community. Upon completion of this degree, students may apply for the Michigan School Administrator Certificate at the building level for Elementary and Secondary Administrator K-12.

The Education Specialist Certificate programs serve students aspiring to administrative positions in education and practicing administrators wishing to enhance their skills. Depending on the plan selected, these programs are designed for those seeking positions as building

administrators, central office administrators, higher education administrators, special education supervisors and directors. The College offers certification programs in all areas of administration approved by the Michigan State Board of Education.

Two doctorate programs in Educational Leadership and Policy Studies (ELPS) are available with provisions for educational leadership, including special education administration. The Doctor of Education (Ed.D.) is designed for those planning to work in the field primarily as a practitioner interested in educational research in settings such as a school district or educational institution; interested in developing continued leadership in education; and policy-making roles.

The Doctor of Philosophy (Ph.D.) is designed for a person who is anticipating an academic career or in an area of practice that demands theoretical research expertise; who is interested in theory and conceptual analysis; and who is interested in research which has potential for advancing education theory and practice.

## Learning Design and Technology Specialties

Each degree and certificate program in Learning Design and Technology is designed to prepare persons for positions in a variety of organizations and sectors including healthcare, business, education, government, military, and human services agencies. The newest technologies are incorporated into these programs, enabling the graduate to function in the ever-changing roles of this profession including:

- learning designer
- learning & development specialist
- talent development
- instructional designer, developer, or researcher
- advanced technology and e-learning specialist
- media or learning resources consultant or manager
- professor, teacher or curriculum specialist
- faculty developer
- technology coordinator and performance technologist
- trainer
- training manager
- consultant

Students can achieve advanced skills in specialty areas such as:

1. Instructional design and evaluation;
2. Performance improvement, training and organizational development;
3. Interactive technologies design and development;
4. e-learning and distance education;
5. Technology integration in the schools;
6. Instructional media design and production;
7. Research and publication in the field; and
8. Other emerging applications of learning design and technology.

Further information can be found on the Learning Design and Technology (<http://coe.wayne.edu/aos/ldt/>) webpage.

- Administration and Supervision (Education Specialist Certificate) (p. 101)
- Educational Evaluation and Research (M.Ed.) (p. 101)

- Educational Evaluation and Research (Ed.D and Ph.D.) (p. 102)
- Program Evaluation (M.A.) (p. 102)
- Educational Leadership (M.Ed.) (p. 102)
- Educational Leadership and Policy Studies (Ph.D.) (p. 104)
- Educational Leadership and Policy Studies (Ed.D.) (p. 103)
- Learning Design and Technology (M.Ed.) (p. 104)
- Learning Design and Technology (Ph.D.) (p. 104)

## Administration and Supervision (Education Specialist Certificate)

### Admission Requirements

Applicants must have a 2.75 Undergraduate GPA or a 3.40 Graduate GPA in the master's program for regular admission; a master's degree from an accredited institution; submission of official transcripts from the undergraduate and graduate degree institutions; a personal statement to include career/academic goals (500-1000 words); and if applicant is seeking the Special Education Administrator concentration, the following two additional requirements apply:

1. Must have current and valid certification in an area of special education including but not limited to the following: Certified Special Education teacher, School Social Worker, School Psychologist, or Speech & Language Pathologist and
2. a minimum three years of experience in Special Education

### Program Requirements

A minimum of thirty credits are required for this certificate predicated on the admission status of the applicant as cited below under the concentrations. Basic requirements are cited under Education Specialist Certificate (p. 93). Since this program is specifically designed to strengthen the individual background of teachers and administrators, all Plans of Work are developed in consultation with the appropriate advisor. Students are required to meet with their academic advisor before registering for courses in the first term to develop a plan of work.

The program is offered in two concentrations:

#### 1) Elementary and Secondary K-12 Administrator (p. 101)

A minimum of 30 credit hours is required for this concentration following the required coursework listed in the table below. Students may be eligible for the State of Michigan Administrator Certificate with an endorsement in Elementary and Secondary K-12 Administrator after completing the specified 24 credit hours listed in the table.

#### 2) Special Education Administrator (p. 101)

A minimum of 35 credit hours is required for this concentration following the required coursework listed in the table below. Completers of this program may be eligible for the State of Michigan School Administrator Certificate with endorsement in Special Education Administrator. In addition, students may be eligible for approval as a Director and Supervisor of Special Education, which is a separate credential from the State of Michigan Administrator certificate. The approval is requested through a school district. Please see an advisor for the coursework required for the approvals.

The Special Education Administrator concentration requires the following:

1. Must have current and valid certification in an area of special education including but not limited to the following: Certified Special

Education teacher, School Social Worker, School Psychologist, or Speech & Language Pathologist and

2. a minimum three years of experience in Special Education

All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

### Elementary and Secondary K-12 Administrator Concentration

Code	Title	Credits
EDA 7625	Leadership, Administration and the Principalship *	4
EDA 7660	Administrative Leadership in School-Community Relations and Public Relations *	3
EDA 7675	Public School Finance and Budgeting *	4
EDA 7690	Introduction to Michigan School Law *	4
EDA 8630	Supervision	3
EDA 8650	Staff Development and School Improvement *	3
EDA 8990	Internship in Administration *	3
EDA 7730	Intersectional Issues in Educational Leadership *	3
EDA 8625	Introduction to School Human Resources	3
<b>Total Credits</b>		<b>30</b>

\* Courses required for certification.

### Special Education Administrator Concentration

Code	Title	Credits
EDA 7660	Administrative Leadership in School-Community Relations and Public Relations	3
EDA 7675	Public School Finance and Budgeting	4
EDA 7800	Administration and Supervision of Special Education	4
EDA 7810	Michigan Special Education Law	4
EDA 7820	Emergent Policies in Special Education Administration	2
EDA 7830	Practicum in Special Education Administration and Supervision	3
EDA 8630	Supervision	3
EDA 8650	Staff Development and School Improvement	3
EDA 7730	Intersectional Issues in Educational Leadership	3
EDA 8625	Introduction to School Human Resources	3
EDA 8990	Internship in Administration	3
<b>Total Credits</b>		<b>35</b>

## Educational Evaluation and Research (M.Ed.)

**Admission:** Students are admitted every semester and must meet the general admission requirements for the Master of Education (p. 94).

A minimum of thirty credits is required for this degree under Plan A, B, or C. Required courses include ED 7999 if Plan B or C is elected, or ED 8999 for Plan A. In addition, a minimum of twelve credits in educational evaluation and research. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.



# Educational Evaluation and Research (Ed.D. and Ph.D.)

An admissions moratorium is in effect for these programs, beginning Winter 2023 and remaining in place through Winter 2026.

## Admission Requirements

Applicants to doctoral programs in this area must meet the admission requirements stated under Admission to Graduate Programs (p. 97).

Basic degree requirements for the Ph.D. and Ed.D. programs are stated at Doctor of Education Requirements (p. 93). All courses in the major are selected in consultation with an advisor. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

## Program Evaluation (M.A.)

The Mission of the M.A. in Program Evaluation at Wayne State University is to prepare a diverse body of evaluation practitioners to positively impact local and global communities by providing high quality, effective, and holistic program evaluations in a manner that is ethical and attendant to the diverse needs and demands of stakeholders in an organization through inclusive and rigorous coursework and a practicum.

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the College of Education (p. 94).

The M.A. in Program Evaluation is an online program, offered under master's degree Plan C (coursework option). The total number of credits for the degree is 33 credits, which involves 30 credits of core/required classes and a three (3) credit practicum experience. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

Code	Title	Credits
Required Courses		
EER 7410	Introduction to Program Evaluation	1
EER 7420	Culturally Responsive Program Evaluation	3
EER 7430	Organizational Theory for Evaluation	3
EER 7610	Evaluation and Measurement	3
EER 7640	Fundamentals of Quantitative Research	3
EER 7870	Qualitative Research I: Introduction	3
EER 8700	Advanced Qualitative Program Evaluation	3
EER 8720	Advanced Quantitative Program Evaluation	3
EER 8910	Practicum in Evaluation	3
LDT 7145	Needs Assessment and Analysis	4
LDT 7150	Evaluation of Learning and Performance	4
Total Credits		33

## Educational Leadership (M.Ed.)

### Admission Requirements

Applicants must have a 2.75 Undergraduate GPA for regular admission (or a 2.50 Undergraduate GPA for qualified admission); submission of official transcripts from the undergraduate degree institution; and a personal statement to include career/academic goals (500-1000 words).

## Program Requirements

General requirements for the Master of Education degree may be found at Master of Education (p. 93).

The program is offered in two concentrations.

1) Elementary and Secondary K-12 Administrator (p. 102)

A minimum of 30 credit hours is required for this concentration following the required coursework listed in the table below and only offered under Plan B (Essay) or Plan C (coursework). Students are required to meet with their academic advisor before registering for courses in the first term to develop a plan of work. Completers of this program may be eligible for the State of Michigan School Administrator Certificate with an endorsement in Elementary and Secondary K-12 Administrator.

2) Special Education Administrator (p. 102)

A minimum of 35 credit hours is required for this concentration following the required coursework listed in the table below and only offered under Plan C (coursework only). Students are required to meet with their academic advisor before registering for courses in the first term to develop a plan of work. Completers of this program may be eligible for the State of Michigan School Administrator Certificate with endorsements in Special Education Administrator (Director and Supervisor) and in Elementary and Secondary K-12 Administrator.

The Special Education Administrator concentration requires the following:

1. Must have current and valid certification in an area of special education including but not limited to the following: Certified Special Education teacher, School Social Worker, School Psychologist, or Speech & Language Pathologist and
2. a minimum three years of experience in Special Education

All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

### Elementary and Secondary K-12 Administrator

Code	Title	Credits
EDA 7625	Leadership, Administration and the Principalship	4
EDA 7660	Administrative Leadership in School-Community Relations and Public Relations	3
EDA 7675	Public School Finance and Budgeting	4
EDA 7690	Introduction to Michigan School Law	4
EDA 7730	Intersectional Issues in Educational Leadership	3
EDA 8625	Introduction to School Human Resources	3
EDA 8650	Staff Development and School Improvement	3
EDA 8990	Internship in Administration	3
Select ED 7999 for Plan B or EPS 8880 or an elective with advisor approval for Plan C.		
ED 7999 or EPS 8880	Terminal Master's Seminar and Essay or Project Workshop in Administrative and Organizational Studies	3
Total Credits		30

### Special Education Administrator

Code	Title	Credits
EDA 7660	Administrative Leadership in School-Community Relations and Public Relations	3
EDA 7675	Public School Finance and Budgeting	4

EDA 7730	Intersectional Issues in Educational Leadership	3
EDA 7800	Administration and Supervision of Special Education	4
EDA 7810	Michigan Special Education Law	4
EDA 7820	Emergent Policies in Special Education Administration	2
EDA 7830	Practicum in Special Education Administration and Supervision	3
EDA 8625	Introduction to School Human Resources	3
EDA 8630	Supervision	3
EDA 8650	Staff Development and School Improvement	3
EDA 8990	Internship in Administration	3
<b>Total Credits</b>		<b>35</b>

## Educational Leadership and Policy Studies (Ed.D.)

The Doctor of Education (Ed.D.) program in Educational Leadership and Policy Studies require a master's degree from an accredited institution or 30 graduate semester hours beyond the bachelor's degree from an accredited graduate school with no grade lower than 'B' and a graduate GPA of at least 3.50. In addition, an Autobiographical Statement to include career/academic goals and research interests (1000–1500 words), three recommendations (two professional and one academic), and an interview may be required.

The Doctor of Education (Ed.D.) program with provisions for educational leadership, including special administration, is designed for a person to who is planning on working in the field primarily as a practitioner; interested in educational research in settings such as a school district or educational institution; interested in developing continued leadership in education; and policy-making roles.

The general requirements for the degrees are stated in the College's [Academic Regulations](#). In addition, all students must complete at least a fifteen-credit sequence in the major. Specific requirements for the major are determined in consultation with the assigned advisor.

The Doctor of Education (Ed.D.) program in Educational Leadership and Policy Studies (ELPS) requires a master's degree from an accredited institution or 30 graduate semester hours beyond the bachelor's degree from an accredited graduate school with no grade lower than 'B' and a graduate GPA of at least 3.50. In addition, an Autobiographical Statement to include career/academic goals and research interests (1000–1500 words), three recommendations (two professional and one academic), and an interview may be required.

The Doctor of Education (Ed.D.) program is designed for practitioners in the field of education who are interested in attaining upper level administration positions at the central office, or pursuing careers in educational advocacy and policy. In addition to coursework designed to enhance educational leadership skills, the program focuses on developing students' practical application of educational research.

The minimum number of credit hours for the degree is 66, which may include up to 30 credits from the student's Master's Degree and Education Specialist Certificate Coursework.

Residency Requirement:

a) At least 25 semester hours beyond the Master's Degree, exclusive of dissertation credit, must be taken in residence at WSU;

b) At least six semester hours of regular course work must be completed in each of 2 consecutive semesters anytime AFTER admission to the doctoral program;

c) At least 30 semester hours, exclusive of dissertation credit, must be taken in coursework open only to graduate students (7000 course level or above).

## Course Requirements

- A total of 66-68 credit hours are required:
  - At least 15 semester hours of coursework in the major is required.
  - For the Central Office Administrator concentration, the Internship is required.
  - Research Techniques: At least 10 semester hours from the courses listed in the table below.
  - A dissertation of at least 10 credit hours is required and completed under the direction of the WSU major advisor. For those not electing the Central Office Administrator concentration, an additional hour of dissertation credit is required to meet the minimum total hours for the degree.
  - Up to 30 credit hours of graduate coursework may be transferred in accordance with the College's Academic Regulations.
  - Electives, if required, should be chosen with the advisor's advice.

Code	Title	Credits
EPS 9600	Seminar in Research and Theory of Administration	3
EPS 9630	Educational Policy Seminar	3
EDA 8620	School Personnel Administration	3
EDA 8630	Supervision	3
EDA 7670	Economic Issues in Education	3
<b>Internship</b>		
An Internship is required for Central Office Certification. For those with prior or current Central Office work experience, the Internship is completed for 1 credit hour. All others will complete the Internship for three credit hours.		
EDA 8990	Internship in Administration	1-3
<b>Research Techniques Courses</b>		
EPS 8180	Research Seminar	2
EPS 8180	Research Seminar	2
EER 7640	Fundamentals of Quantitative Research	3
EER 7870	Qualitative Research I: Introduction	3
<b>Dissertation Hours</b>		
ED 9989	Doctoral Dissertation Research and Direction	2
Taken with the second EPS 8180. Two credit hours of dissertation are permitted prior to or with the Qualifying Exams.		
ED 9989	Doctoral Dissertation Research and Direction	4
ED 9989	Doctoral Dissertation Research and Direction	4
The remaining eight hours of dissertation listed above are completed after passing the Qualifying Exam.		
<b>Transfer/Electives Courses</b>		<b>30</b>
<b>Total Credits</b>		<b>66-68</b>

Following completion of ED 9989 and if the dissertation has not been defended, students should maintain registration each Fall and Winter using ED 9995, Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0, for a flat fee.

Students must be registered the semester of the Final Defense (typically in ED 9989 or ED 9995).

Courses are available in online, hybrid and traditional format.

All coursework must be completed in accordance with the academic procedures of the [College of Education](#) and the [Graduate School's](#) regulations governing graduate scholarship and degrees.

## Educational Leadership and Policy Studies (Ph.D.)

The Doctor of Philosophy (Ph.D) program in Educational Leadership and Policy Studies require a master's degree from an accredited institution or 30 graduate semester hours beyond the bachelor's degree from an accredited graduate school with no grade lower than 'B' and a graduate GPA of at least 3.50. In addition, an Autobiographical Statement to include career/academic goals and research interests (1000–1500 words), three recommendations (two professional and one academic), and an interview may be required.

The Doctor of Philosophy (Ph.D.) with provisions for educational leadership, including special education administration, is designed for a person who is anticipating an academic career or in an area of practice which demands theoretical research expertise; who is interested in theory and conceptual analysis; and is interested in research which has potential for advancing education theory and practice.

The general requirements for the degrees are stated under Doctoral Degrees (p. 97). In addition, all students must complete at least a fifteen-credit sequence in the major. Specific requirements for the major are determined in consultation with the assigned advisor. A minimum six credits is required in doctoral seminars for non-majors.

**Research Techniques:** At least 15 semester hours in research techniques are required from the following:

**EPS 8180** (4 crs.) Research Seminar (required)

**EER 7630** (3 crs.) Fundamentals of Statistics

**EER 7640** (3 crs.) Fundamentals of Quantitative Research

**EER 7650** (3 crs.) Computer Use in Research.

**EER 7870** (3 crs.) Fundamentals of Qualitative Research

**EER 8820** (3 crs.) Multivariate Analysis

**EER 8800** (3 crs.) Variance and Covariance Analysis

All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

## Learning Design and Technology (M.Ed.)

*An admissions moratorium is in effect for this program.*

The Master of Education in Learning Design and Technology prepares students as instructional designers, e-learning specialists, multimedia specialists, user engagement designers, consultants, and training and development directors. The program encompasses the analysis of learning and performance for the design, development, implementation, evaluation, and management of processes and resources intended to improve learning and performance in various settings. The curriculum provides knowledge necessary to create, use, assess, and manage theoretical and practical applications of instructional technologies and processes. Students learn to facilitate learning by creating, using,

evaluating, and managing effective learning interventions within a supportive community of practice.

## Admission Requirements

- A completed WSU Graduate Application
- A brief 2-3 paragraph personal interest statement explaining how this degree will aid the applicant in his or her future career pursuits.
- Official Transcripts from previous undergraduate and graduate college/university course work showing a minimum 2.80 GPA (Transcripts must be sent directly to the University from the various institutions). The Graduate Record Examination may be required for those students with undergraduate grade point averages between 2.50 and 2.80. Contact the program area for further information.

## Program Requirements

General requirements may be found under the Master of Education (p. 93) section. All coursework must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

A minimum of 30 credits is required for an online master's degree in Learning Design and Technology, at least 24 credits must be taken at Wayne State University. The degree can be completed by an all course work option also known as Plan C from the Graduate School and meet the General Professional Core requirements.

Students are required to meet with their academic advisor before registering for courses in the first term to develop a plan of work.

Code	Title	Credits
Required Courses (18 credits)		18
LDT 7111	Design Studio I	
LDT 7112	Design Studio II	
LDT 7145	Needs Assessment and Analysis	
LDT 7150	Evaluation of Learning and Performance	
LDT 7400	Capstone Project	
LDT Electives: 12 credit hours in consultation with your advisor (LDT 5000 – 8999)		12
LDT 7130	Facilitating Digital Learning	
LDT 7140	Interactive Course Design	
LDT 7180	Message Design for Learning	
LDT 7210	Emerging Technologies for Digital Learning	
LDT 7220	Mobile Learning Technologies	
LDT 7230	Video, Simulation, and Games for Learning	
LDT 7240	Learning in Organizations	
LDT 7310	UX Design for Learning	
LDT 8120	Practicum in Learning Design and Technology	
LDT 8320	Performance Consulting and Analysis	
Total Credits		30

## Learning Design and Technology (Ph.D.)

The Doctor of Philosophy (Ph.D.) program in Learning Design and Technology prepares researchers to apply evidence-based practices in higher education, business, healthcare, and government. The curriculum provides knowledge necessary to explore, evaluate, synthesize, and apply methods of inquiry to enhance learning and improve performance. Students apply knowledge necessary to create, use, assess, and manage

theoretical and practical applications within a supportive community of practice.

The Ph.D. in Learning Design and Technology is designed for those who meet the following criteria and whose research interest align with those of our faculty to provide support and mentoring.

- Already have a Master's degree
- Are knowledgeable and experienced in the field (either through previous academic work or significant related work experience) and
- Demonstrate scholarly promise

## Admission Requirements

An informal interview with a potential faculty advisor is mandatory before completing an application for the Ph.D. program.

- A completed WSU Graduate Application
- Grade Point Average: Undergraduate 2.8 and graduate 3.4
- Valid and official Graduate Record Examination (GRE) scores (Verbal Reasoning, Quantitative Reasoning, Analytical Writing)
- Three academic recommendations
- Departmental interview with faculty
- Autobiographical statement, curriculum vita, and a research plan of intent must include research alignment with a potential academic advisor.
- Research plan of intent must include:
  - What are your current research interests?
  - Who do you think among our faculty would be your best advisor and why? (You can suggest 1 – 2 people as possible advisors with a rationale for each.)
  - How do the research interests of the selected advisors fit with your own interests?
  - Additional information often included in the statement of intent includes information on the candidate's background and experiences and any anomalies in the candidate's record that need explanation.

## Program Requirements

All coursework must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees. All doctoral committees must include a minimum of two faculty members from Learning Design and Technology; three LDT faculty members are preferred for Ph.D. students. All plans of work are developed in consultation with the student's assigned doctoral advisor. Students are required to meet with their academic advisor before registering for courses in the first term to develop a plan of work.

A minimum of 90 credits are required for a Ph.D. in Learning Design and Technology. Core requirements in the major include:

Code	Title	Credits
<b>Core Courses: 24 credits</b>		<b>24</b>
LDT 7111	Design Studio I	
LDT 7112	Design Studio II	
LDT 7145	Needs Assessment and Analysis	
LDT 7150	Evaluation of Learning and Performance	
LDT 8100	Critical Issues in LDT Scholarship	
LDT 8110	Theory and Research in LDT Scholarship	
<b>Research Courses: 17 credits (15 credits required)</b>		<b>17</b>
EER 7640	Fundamentals of Quantitative Research	

EER 7870	Qualitative Research I: Introduction
LDT 9105	Conducting Research in Learning Design and Technology
LDT 9110	Advanced Research Seminar and Practicum
One of the following:	
EER 7880	Fundamentals of Ethnographic Research
EER 8800	Variance and Covariance Analysis
EER 8700	Advanced Qualitative Program Evaluation
<b>LDT Electives: 19 credits in consultation with your advisor (LDT 7000 – 8999)</b>	
LDT 7130	Facilitating Digital Learning
LDT 7140	Interactive Course Design
LDT 7180	Message Design for Learning
LDT 7210	Emerging Technologies for Digital Learning
LDT 7220	Mobile Learning Technologies
LDT 7230	Video, Simulation, and Games for Learning
LDT 7310	UX Design for Learning
LDT 8320	Performance Consulting and Analysis
<b>Dissertation Research: 30 credit hours</b>	
ED 9991	Doctoral Candidate Status I: Dissertation Research and Direction
ED 9992	Doctoral Candidate Status II: Dissertation Research and Direction
ED 9993	Doctoral Candidate Status III: Dissertation Research and Direction
ED 9994	Doctoral Candidate Status IV: Dissertation Research and Direction
<b>Total Credits</b>	
<b>90</b>	



# Kinesiology, Health and Sport Studies

Office: 2152 Faculty Administration Building; 313-577-4249  
Assistant Dean: Nate McCaughtry  
<https://education.wayne.edu/health-exercise-sports/> (<https://education.wayne.edu/health-exercise-sports/>)

The Division of Kinesiology, Health and Sport Studies (KHS) offers Master's of Science degrees in Community Health, Exercise and Sport Science, Health and Physical Education Teaching, and Sport administration. In addition, the Division offers Accelerated Graduate (AGRADE) programs, where students can link any bachelor degree with any master's degree (Community Health, Exercise and Sport Science, Health and Physical Education Teaching, Sport Administration) allowing undergraduate students who have accumulated 90 credit hours and maintained a 3.0 GPA to take master's level courses (up to 16 credits) during their senior year (at the undergraduate tuition rate), which will double-count toward both their bachelor and master's degrees, reducing both the time and cost associated with attaining multiple advanced professional degrees. and sports administration for the general student body. For students interested research and leadership careers, the Division offers a Ph.D. in Kinesiology, with concentrations in Community Health, Exercise and Sport Science, and Health and Physical Education Teaching.

## Advisors

Upon admission to a master's program, new students are assigned a faculty advisor to establish their official plan of work and mentor them through the completion of their degree. Students interested in completing a Ph.D. program must first communicate with the Division's research faculty to identify a faculty member whose line of research aligns with the student's career ambitions and agrees to serve as the student's major advisor prior to submitting an application for admission.

## Regular Admission

Applicants must have an undergraduate grade point average of 3.0 or above.

## Qualified Admission

Applicants whose undergraduate grade point average is between 2.0 and 2.99, and who otherwise meet the criteria for regular admission, may be admitted to a master's program on a qualified admission.

## Non-Degree Admission (Pre- or Post-Master's)

Applicants must have an undergraduate grade point average of 2.0 or above, and an undergraduate degree of any field. Non-degree applicants must include a personal statement with their graduate application, specifying their intent to apply to a Kinesiology, Health and Sport Studies master's degree program prior to earning nine credit hours. No more than nine credits taken in graduate non-degree admission status may later be applied to graduate master's degree program.

- Community Health (M.S.) (p. 106)
- Exercise and Sport Science (M.S.) (p. 106)
- Health and Physical Education Teaching (M.S.) (p. 107)
- Sport Administration (M.A.) (p. 109)
- Kinesiology (Ph.D.) (p. 109)

# Community Health (M.S.)

## Mission Statement

Our mission is to advance health equity through the preparation of Community Health Education Specialists who explore the multiple levels (individual, family, community, policy, systems) and social determinants that influence behavior and health. Community health professionals focus on the community as the setting for analysis, assessment, advocacy, program planning, intervention, evaluation, and research, and are committed to developing, enhancing and using evidence-informed strategies to improve population health.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the Division of Kinesiology, Health and Sport Studies (p. 93).

## Program Requirements

The Master of Science with a major in Community Health degree is offered under the following plans:

- **Plan A:** *Thirty-five credits including an eight-credit thesis*
- **Plan B:** *Thirty credits including a three-credit project or internship*
- **Plan C:** *Thirty credits (neither thesis or project required)*

Requirements for this degree include: general professional education courses; specialization courses and elective courses. Professional education courses and electives should be chosen in consultation with an advisor. A minimum g.p.a. of 3.0 is required for graduation. All coursework must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

Code	Title	Credits
<b>Required Specialization Courses</b>		
HE 6420	Introduction to Health Education Program Design	3
HE 6530	Principles and Practice of Health Education and Health Promotion	3
HE 7051	Measurement and Evaluation in Community Health Education	3
HE 5522	Health Psychology	3
HE 6100	Health Communication Methods and Techniques	3
KHS 8540	Theories of Health Behavior	3
HE 7200	Grant Writing and Management in Health Sciences	3
HE 6570	Advancing Community Health and Health Equity	3
HE 6560	Integrating Evidence-Based Practices in Community Health: Translating Research-To-Practice	3
Select one of the following, or another 3-credit minimum community health-related course approved by your advisor:		3-8
KHS 7990	Special Problems in KHS	
KHS 7999	Master's Essay and Project Direction	
KHS 8999	Master's Thesis Direction	
KHS 8750	Internship in Kinesiology, Health and Sport Studies	
<b>Total Credits</b>		<b>30-35</b>

# Exercise and Sport Science (M.S.)

The Exercise and Sport Science degree provides students with a scientific-based curriculum for improving human performance and



wellness; and is an ideal preparation for successful entry into a variety of graduate professional programs such as nursing, occupational therapy, physician assistant, physical therapy, athletic training, or medical school. Students develop application skills for sport and fitness activities, assessment and evaluation of various populations and fitness levels, and human movement systems from subdisciplines of kinesiology. Career options include corporate wellness, exercise physiologist, cardiac rehabilitation, strength and condition coach, and a wide variety of therapeutic exercise and recreation positions.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the Division of Kinesiology, Health and Sport Studies (p. 93).

## Program Requirements

The Master of Science with a major in Exercise and Sport Science is a total of 30 credits minimum and offered under the following options:

- **Plan A:** A minimum of thirty credits including an eight credit thesis
- **Plan B:** A minimum of thirty credits including a three-credit project
- **Plan C:** A minimum of thirty credits including an internship (variable credit option)

The required courses are 15-21 credits, electives credits are between 3-9 credits, and the culminating experience is between 1-8 credits.

Code	Title	Credits
<b>Required Courses</b>		
KIN 5523	Physical Activity and Exercise Psychology	3
KIN 6310	Exercise Physiology II	3
KIN 6320	Fitness Assessment and Exercise Prescription	3
KIN 7580	Biomechanical Analysis of Motor Activity	3
KIN 8530	Motor Learning	3
<b>Culminating Experience</b>		
Select one of the following:		
KHS 7999	Master's Essay and Project Direction	
KHS 8999	Master's Thesis Direction	
KHS 8750	Internship in Kinesiology, Health and Sport Studies	
<b>Elective Courses</b>		
Select courses as approved by advisor to complete the thirty credits required for graduation		

# Health and Physical Education Teaching (M.S.)

## Degree Options

There are four concentrations for Master's of Science with a major in Health and Physical Education Teaching. Concentrations are selected on the basis of prior degrees and career focus.

1. **Continuing Education seeking K - 12 Health and Physical Education Teacher Certification** (for candidates who already have a Michigan teaching certificate to teach in other content areas, but wish to Health and Physical Education to their teaching certificate)
2. **Continuing Education** (for candidates who are already certified in Health and Physical Education Teaching, and would like to continue their studies in these areas by adding a Masters-level credential)
3. **Initial K-12 Health and Physical Education Teacher Certification** (for candidates who have a Bachelors degree in a field outside of Education

and are now interested in obtaining an initial teacher certification in Health and Physical Education Teaching)

4. **Adapted Physical Education Endorsement** (for candidates seeking the Special Education Endorsement - Physical Education for Students with Disabilities)

## Overview

The program emphasis is on obtaining teaching knowledge and skills Health and Physical Education Teaching. The curriculum includes classes in; curriculum development for school health and physical education programs, implementing developmentally appropriate instruction for all learners, assessing health and physical education content knowledge and skill proficiency, using instructional technology effectively, and demonstrating the qualities of a professional Health and Physical Educator. Each concentration is comprised of tailored coursework and professional experiences according the student's prior background and professional aspirations to prepare them to meeting multiple levels of disciplinary standards including:

- The Michigan Interstate Teacher Assessment and Support Consortium (MI InTASC) Model Core Teaching Standards, adopted by the State Board of Education (SBE) in 2013, define the theoretical and practical knowledge, skills, and dispositions that all entry-level teachers should possess upon completion of an approved teacher preparation program.
- Michigan-specific content standards define the central concepts, tools of inquiry, and structures of the specific discipline(s) in which teacher candidates seek endorsements, as well as pedagogical applications of that disciplinary knowledge." *"Standards for the preparation of Health and Physical Education Teachers in Michigan."*

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the Division of Kinesiology, Health and Sport Studies (p. 93). Additionally, in order to be eligible for admission, applicants must submit the following: Scores from a nationally normed test (i.e., ACT, SAT), a negative Tuberculosis (TB) test completed within the last three years, and a Criminal History Background check completed through Castle Branch, and official undergraduate transcripts.

Testing in the Health and Physical Education content areas are required for State Certification and completed near the end of the professional coursework. The Michigan Test for Teacher Certification (MTTC) examination scores must be sent directly to Wayne State University by Evaluation Systems Group of Pearson, the MTTC testing agency. When registering for the MTTC, students should select "Wayne State University" as a "College or University to Receive Scores."

## Continuing Education

This is the concentration that it is the most flexible. Students who enroll in this program already have teacher certification and are coming back to school to obtain their master's and gain professional knowledge. Given this focus, it is important for students to have flexibility with their options. There are two required courses for this concentration (6 credit hours) and 24 credit hours that are electives. The electives must be taken in KIN, KHS, HPE, HE, or SAM and must be approved by the advisor. This is a total of 30 credit hours to obtain the degree.

## Required Courses

Code	Title	Credits
HPE 6220	Technology in Health and Physical Education	3
HPE 6230	Socio-cultural Issues in Physical Activity	3
<b>Total Credits</b>		<b>6</b>

## Continuing Education seeking K-12: Health and Physical Education Teacher Certification

This concentration is for students who are already certified in another subject area and are looking to add Health and Physical Education Teaching as an endorsement to their teacher licensure. This concentration has a minimum of 30 credit hours but could take up to 51 credits to complete (depending on the courses that they might have already taken). The courses that are required for certification are approved by the State of Michigan. The total number of courses/credit hours that need to be taken at WSU to be certified in Health and Physical Education K-12 is 51 credit hours or 17 courses. As these students are already certified in another area (or in a single area such as Health or Physical Education), they might be able to have equivalent courses counted toward their state certification. Given these unknowns, this degree is a minimum of 30 credit hours, but requires 51 credit hours if the student does not have any courses at previous institutions.

## Required Courses

Code	Title	Credits
KIN 5100	Anatomical and Physiological Bases of Physical Activity	3
KIN 6110	Motor Learning and Development	3
HPE 6120	Sports I	3
HPE 6140	Fitness and Dance	3
HPE 6200	Management and Instruction in Health and Physical Education	3
HPE 6210	Curriculum and Instruction in Health and Physical Education	3
HPE 6220	Technology in Health and Physical Education	3
HPE 6230	Socio-cultural Issues in Physical Activity	3
HE 6310	Reproductive Health Education	3
HE 6320	Mental Health and Substance Abuse	3
HE 6330	Health Behavior Change	3
HE 6340	Advanced Concepts in Health	3
HE 6360	Performance Based Assessment	3
HPE 6400	Physical Activity in Pediatric Disabilities	3
HE 6500	Secondary Health Methods	3
HPE 6510	Elementary Health and Physical Education Methods	3
HPE 6520	Secondary Physical Education Methods	3
<b>Total Credits</b>		<b>51</b>

## Initial K-12 Health and Physical Education Teacher Certification

This concentration is for those students who already have a bachelors degree in any subject area, but would like to go back to school to become a teacher. These students will earn initial teacher certification through this master's degree. The required courses are approved and required by the State of Michigan for Health and Physical Education Teacher initial certification. There is a total of 64 credit hours/19 courses that must be taken. As with all other concentrations, the student can take a minimum of 30 credit hours for this degree if they have taken equivalent courses at other institutions. However, a total of 64 credits/19 courses with

equivalent content must be accounted for to obtain recommendation for certification.

## Required Courses

Code	Title	Credits
KIN 5100	Anatomical and Physiological Bases of Physical Activity	3
KIN 6110	Motor Learning and Development	3
HPE 6120	Sports I	3
HPE 6140	Fitness and Dance	3
HPE 6200	Management and Instruction in Health and Physical Education	3
HPE 6210	Curriculum and Instruction in Health and Physical Education	3
HPE 6220	Technology in Health and Physical Education	3
HPE 6230	Socio-cultural Issues in Physical Activity	3
HE 6310	Reproductive Health Education	3
HE 6320	Mental Health and Substance Abuse	3
HE 6330	Health Behavior Change	3
HE 6340	Advanced Concepts in Health	3
HE 6360	Performance Based Assessment	3
HPE 6400	Physical Activity in Pediatric Disabilities	3
HE 6500	Secondary Health Methods	3
HPE 6510	Elementary Health and Physical Education Methods	3
HPE 6520	Secondary Physical Education Methods	3
RLL 6121	Teaching Reading in the Content Areas: Grades 6-12	3
HPE 6600	Student Teaching and Seminar	10
<b>Total Credits</b>		<b>64</b>

## Adapted Physical Education K-12 with Certification

This is for those who already have teacher certification in Health and Physical Education or Special Education and would like to add Adapted Physical Education K-12 to their State of Michigan teaching license. There is a total of 30 credit hours needed to obtain the degree with this concentration. Twenty-one of those credit hours are required courses as stipulated by the State of Michigan for certification, and nine credit hours are electives for the student. The electives must be courses in KIN, KHS, HPE, HE, SED, and SAM and must be approved by the advisor.

## Required Courses

Code	Title	Credits
HPE 6400	Physical Activity in Pediatric Disabilities	3
HPE 6410	Teaching Adapted Physical Activity and Sport	3
HPE 6420	Teaching Aquatics to Special Populations	3
HPE 6430	Physical Activity Assessment in Special Populations	3
HPE 6440	Leadership Training and Practicum in Adapted Physical Education	3
SED 5000	History, Philosophy, and Ethics of Teaching Students with Disabilities	2
SED 5080	Supportive Environments, Engaged Learning	2
TED 6220	Foundations III: Foundations of Inclusive Schooling	2

Electives in KIN, KHS, HPE, HE, SED, and SAM and must be approved by the advisor. 9

**Total Credits** 30

## Sports Administration (M.A.)

This online M.A. program is designed to prepare students for a career within the broad spectrum of sports programs, agencies, and related organizations. Students may specialize in one of four areas of concentration: interscholastic athletic administration, intercollegiate athletic administration, commercial sports administration, or professional sports administration. Students may custom-design their curriculum through internships and elective coursework as approved by their advisor.

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the Division (p. 106).

This Master of Arts degree is offered as a Plan C option. Plan C requires thirty-four credits in course work including twenty-four credits in required courses, with the remaining credits from courses to be selected in consultation with an advisor. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

Code	Title	Credits
<b>Required Courses</b>		<b>24</b>
SAM 6410	Introduction to Sports Administration	3
SAM 6570	Sports Marketing	3
SAM 6660	Risk Management in Physical Education and Sports	3
SAM 6661	Equity and Access in Sport	3
SAM 7540	Concepts of Management in Health, Physical Education and Recreation	3
SAM 7581	Sport Finance	3
SAM 8750	Internship in Sports Administration	1-8
<b>Additional Courses</b>		<b>6</b>
Please select six (6) credits from the following elective courses (additional courses may be selected in consultation with the advisor):		
SAM 5510	Principles of Coaching	3
SAM 6300	Interscholastic Athletic Directing	3
SAM 6310	Collegiate Athletic Administration	3
SAM 6320	Youth Sports and Recreation	3
SAM 6530	Professional Sport Administration	3
SAM 6531	Sports Event Management	3
SAM 6560	Media Design and Communication	3
SAM 6750	Field Work in Sports Administration and Management	1-4
SAM 6640	Legal Issues in Health, Physical Education and Recreation	3

**Selected Courses:** Additional courses from a list approved by the advisor to complete the minimum of thirty credits required for graduation. A minimum of twenty-four of these thirty credits required for graduation must be earned in courses within the Division of Kinesiology, Health and Sport Studies.

## Kinesiology (Ph.D.)

The Ph.D. in Kinesiology prepares students to become researchers and educators in academic institutions and other industries requiring Ph.D.-

trained professionals in the general areas of exercise, health, wellness, human performance and disease prevention.

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the Division (p. 106).

The Ph.D. in Kinesiology has three concentrations: a) Community Health, b) Exercise and Sport Science, and c) Health and Physical Education Teaching. Each concentration gives students the knowledge, skills and experience to succeed as a researcher and educator in higher education or related careers.

The plan of work for each admitted student is developed between the student and their major advisor with the goal being a plan of work that provides students with the most appropriate coursework and experiences to best prepare them for success in their future careers. Students align with a major advisor to design a tailored plan of work that incorporates: major courses aligned with the student's career aspirations, 15 credits of research methods, and 30 credits of culminating dissertation. Coursework from previous masters degree's may be included as major coursework upon discussion with the major advisor. The Ph.D. requires 90 credits beyond the undergraduate degree.

Additional general requirements for this degree are stated in the Doctor of Education Requirements (p. 93). All coursework must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees. Students may enroll on a full-time or part-time basis but must complete requirements within seven years of admission.

Interested applicants are strongly encouraged to contact Heather Ladanyi (eb3703@wayne.edu), Manager of the Division of Kinesiology, Health and Sport Studies, for guidance prior to the submission of admission applications.

# Teacher Education

Office: 241 Education Building; 313-577-0902  
Assistant Dean: Nimisha H. Patel, Ph.D.

There are a number of pathways to teacher certification at Wayne State University, and all prepare future teachers to be knowledgeable, skillful, and caring professionals who are able to make a difference in the lives of children and youth. Students in our teacher certification programs benefit from outstanding faculty for their university coursework, and clinical experiences in Detroit and beyond that prepare them to work effectively and passionately with diverse children and youth.

In addition to our initial teacher certification programs, our Division of Teacher Education offers master's degrees for those who want to extend their knowledge for teaching, and doctoral programs for students who seek positions in colleges and universities, school districts, and educational agencies.

Wayne State University is known for its commitment to its urban mission. The faculty in Teacher Education conduct research and teach courses that focus on creating school experiences that are academically rigorous, personally meaningful, and that sustain a vibrant democracy.

## Graduate Teacher Education

The graduate unit of the Division of Teacher Education emphasizes the development of competence in instruction, the improvement of curriculum at all levels, and the ability to conduct scholarly research. The graduate programs in teacher education are designed to prepare educators and researchers who are:

- effective in schools and other educational settings; knowledgeable in content areas for which they are responsible;
- knowledgeable about growth and development of learners, teaching and learning styles, philosophical purposes of schooling and methodologies of education;
- committed to the continuous improvement of the processes of education;
- responsive to a rapidly-changing technology and cognizant of its implications for education and schooling;
- cognizant of the uniqueness of urban and metropolitan areas;
- cognizant of the values and contributions of various racial, ethnic, gender, sexual, national, ability and linguistic groups;
- capable of promoting an understanding of the dynamics of cultural and linguistic pluralism in our society;
- able to promote collaboration between teachers, schools, parents, community and students;
- capable of creative thought and able to stimulate and promote creative thought in their students;
- able to study educational issues through the design and implementation of a research project;
- able to identify and use the results of educational research;
- able to reflect on and develop their own patterns of ethical behavior;
- able to serve educational institutions in local, national and international settings.

The Division offers degree programs for a wide range of advanced professional roles:

1. supervisory and resource teachers, coordinators, consultants, and curriculum specialists;
2. teachers and consultants in school settings;

3. educators and consultants in non-school settings, including working with adults;
4. college and university faculty and researchers in the field of education.

- Educational Studies (Ph.D.) (p. 111)
- Early and Elementary Education (M.A.T.) (p. 112)
- Secondary Education Major (M.A.T.) (p. 116)
- Art Education (M.Ed.) (p. 118)
- Teaching and Learning (M.Ed.) (p. 119)
- Bilingual Education (Bridge Graduate Certificate) (p. 119)
- English as a Second Language (Bridge Graduate Certificate) (p. 119)
- Elementary Mathematics Specialist: Advanced (Graduate Certificate) (p. 120)
- Elementary Mathematics Specialist: Introductory (Graduate Certificate) (p. 120)
- Curriculum and Instruction (Ed.D) (p. 120) (admissions moratorium)
- Curriculum and Instruction (Education Specialist Certificate) (p. 120)

The Division of Teacher Education provides pathways to attain initial certification at the masters level (Masters in the Art of Teaching, M.A.T.) and additional endorsements that can be added to an existing teaching certificate.

## Teaching Certificates

Teaching Certification are granted by the State of Michigan. The College of Education recommends certification to those who successfully complete all requirements for a certification program and for whom we have the required official passing MTTC scores.

**Standard Teaching Certificate** The Standard Certificate is the initial certificate issued by the State of Michigan for a five-year period. Renewal of the Standard Certificate adds five years to the certificate's validity and renewals are currently unlimited.

**Professional Teaching Certificate** Teachers may advance to a five-year Professional Certificate after completing additional requirements. The Professional Certificate currently has unlimited renewals. The requirements for the Professional Certificate can be found at <https://www.michigan.gov/mde/services/ed-serv/ed-cert/cert-guidance/teacher-recertification/progress-to-professional>

Contact a College of Education advisor for additional information.

## M.A.T. Standard Teaching Certificate Programs

### Birth-Kindergarten (B-K) Standard Certificate

1. The candidate must have graduated with a bachelor's degree from an approved or accredited institution.
2. Complete all program requirements.
3. Requires a Criminal Background Check for each clinical experience that is no more than six months old.

### PreK-Grade 3 (PK-3) Standard Certificate

1. The candidate must have graduated with a bachelor's degree from an approved or accredited institution.
2. Complete all program requirements.
3. Requires a Criminal Background Check for each clinical experience that is no more than six months old.



## Grades 3-Grade 6 (3-6) Standard Certificate

1. The candidate must have graduated with a bachelor's degree from an approved or accredited institution.
2. Complete all program requirements.
3. Requires a Criminal Background Check for each clinical experience that is no more than six months old.

## Grades 7-12 in Secondary Education Standard Certificate: Mathematics, English/Language Arts, Science, or Social Studies

1. The candidate must have graduated with a bachelor's degree from an approved or accredited institution.
2. In general, the academic background must include required content associated with the respective certification area.
3. Complete all program requirements.
4. Requires a Criminal Background Check for each clinical experience that is no more than six months old.

## Grades K-12 in World Languages Standard Certificate: Arabic, French, or Spanish

1. The candidate must have graduated with a bachelor's degree from an approved or accredited institution.
2. In general, the academic background must include required content associated with the respective certification area.
3. Must have the required language courses and exhibit proficiency.
4. Complete all program requirements.
5. Requires a Criminal Background Check for each clinical experience that is no more than six months old.

## M.A.T. Clinical Requirements

All candidates enrolled in an M.A.T program must complete clinical experiences as part of coursework, which includes a full semester student-teaching. All clinical experiences may only be completed during the P-12 school day. Student teaching typically requires being in a P-12 school all day, everyday for an entire semester.

## Endorsements

Students may enroll in one of the endorsement programs while also enrolled in one of the M.A.T certification programs. However, certification in one of the M.A.T programs must be attained in order for the BBE or ESL endorsement to be awarded.

**Bilingual/Bicultural Endorsement (BBE).** The Bilingual Education certifies a teacher who is qualified to teach classes of bilingual children. The BBE K-12 endorsement is 24 credit hours. All students in the BBE program must successfully complete the language proficiency examinations specified by the Graduate School, if applicable, and the designated language of his/her/their individual program prior to taking courses for this program. Interested students should consult their advisor.

**English as a Second Language Endorsement (ESL).** The English as a Second Language (ESL) Endorsement certifies a teacher who is qualified to teach learners with limited English proficiency. The ESL K-12 endorsement is 24 credit hours. Interested students should consult their advisor.

**Grade Level Endorsements.** Candidates may add grade bands (e.g., adding a 3-6 grade band to a PK-3 grade band)

**Content Endorsements.** Candidates may add content area endorsements (e.g., adding a 7-12 science certification to a 7-12 mathematics certification)

For more information regarding endorsements, consult an advisor.

Applications for an endorsement must be made within five years of meeting the endorsement requirements. State examinations must be passed for all endorsements.

## Educational Studies (Ph.D.)

The doctoral program in Educational Studies is committed to preparing a new generation of researchers, educators, and leaders by engaging them in critical inquiry of educational issues and needs germane to the large cities of the 21st century. Education of new scholars capitalizes on the cultural richness of urban Detroit and its suburbs. Consistent with contemporary understandings of knowledge development and learning sciences, professional educators study the art and craft of constructing learning sequences, teaching and learning modules, assessments, and professional development models and materials. Educational tools and intellectually stimulating, empathetic environments are provided to facilitate conceptual understanding, defensible practices, and learning dispositions. Doctoral students are also supported to conduct innovative research that is centered in and informed by theory and practice, endowed with intellectual merit, and intended to have a broad impact on teaching and learning.

The doctoral program adopts an interdisciplinary approach to teaching and learning, acknowledging the relationship among the learner, the learning, and the learning environment and the consequences this approach has for educational theory, policy, and practice. The program emphasizes the interrelationship between cultural/linguistic diversity and learning and utilizes learners' experiences in curriculum studies. The socio-cultural context of learning in the educative process promotes equity and excellence within larger political and institutional settings. The important frames guiding the doctoral study are the integration of theory and research; the importance of reflection in learning; the role of gender, race, ethnicity, culture, and class as social constructions, which profoundly impact and inform teaching and learning; and the establishment of collaborative partnerships for community-based research. The doctoral program provides a forum that brings together the latest academic and policy discussions, and promotes critical inquiry, discourse, and debate, on the often complex interconnections in education.

The cohort model of this program is designed to support students by providing opportunities for socialization into doctoral studies and research, mentorship from nationally and internationally recognized scholars, and collaboration with peers and faculty members from across concentration areas. This program offers opportunities for students to experience program-, division-, and college-level committees; engage in teaching internships, and conduct, document, and publish research in collaboration with faculty.

## Admission Requirements

The College of Education has specific requirements for admission to doctoral programs.

- Undergraduate GPA - 3.0; Graduate GPA - 3.3
- Academic writing sample (note: instructions on the application)
- Autobiographical statement (cover sheet and narrative; note: instructions on the application)
- Letters of recommendation: two academic and one professional (note: Submitted through application process)
- Application fee (note: fee is waived for WSU graduates)



Admission decisions are made once per year for the doctoral program. All application materials must be completed and submitted by January 1st for fall admission in the following academic year.

At the time of application, you should select an area of concentration: Science, Technology, Engineering and Mathematics (STEM); Reading, Literacy and Literature (RLL); or Curriculum and Critical Social Inquiry (CCSI).

## Program Requirements

The doctoral program in Educational Studies offers three concentration areas:

- Science, Technology, Engineering and Mathematics (STEM);
- Reading, Literacy and Literature (RLL);
- Curriculum and Critical Social Inquiry (CCSI).

Ninety (90) credits are required for the program. Of these, a minimum of twenty-four (24) credits are in the major area (i.e., Educational Studies with a concentration), minimum fifteen (15) are research courses, thirty (30) credits are the dissertation. All coursework must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

To be awarded a graduate degree, a student must have achieved at least a 'B' (3.0) overall grade point average. Grades of 'B-minus' and below are unsatisfactory for graduate level work. A limited number of 'B-minus', 'C-plus', or 'C', though unsatisfactory, may be applied toward a graduate degree provided they are offset by a sufficient number of higher grades to maintain a grade point average of 3.0. Grades below 'B' can constitute reason for dismissal from a program at the department or program's discretion. Students will consult with their departments and advisors regarding unsatisfactory grades and their impact on good academic standing. Up to two courses with grades of C+ or below can be retaken once in order to continue in the program. Any student receiving more than two grades of C+ or below in either his/her major area courses (including the various statistics and research courses) or in the minor area courses will not be permitted to continue in the program.

All doctoral students are required to pass the Final Qualifying Examination near or at the end of their coursework. The Exams are held during the fall and winter terms each academic year. With approval by the major advisor, students in this program have the option of taking traditional on-site qualifying exams or take-home qualifying exams.

### Required Courses

Code	Title	Credits
<b>Educational Studies Seminars</b>		<b>8</b>
TED 8100	Doctoral Seminar: Thought, Language, Power, Social Interaction and Learning	
TED 8150	Pro-Seminar I: Introduction to Research in Educational Studies	
TED 8200	Doctoral Seminar: Education in Socio-Political Culture	
TED 8250	Pro-Seminar II: Introduction to Research in Educational Studies	
<b>Research Core Courses <sup>1</sup></b>		<b>15</b>

<sup>1</sup> Minimum 15 credit hours required, 6 of which must be at the 8000 level or above. Courses should be selected with approval from an advisor.

### STEM Concentration

Code	Title	Credits
TED 8500	Integrating STEM Content	3
TED 8550	Doctoral Seminar: STEM Education and Research	3
Elective courses		10

### CCSI Concentration

Code	Title	Credits
TED 8350	Basic Principles of Curriculum and Instruction	3
TED 8400	Issues in Urban Education	3
TED 9130	Doctoral Seminar in Curriculum and Instruction	3
Elective courses		7

### RLL Concentration

Code	Title	Credits
RLL 8600	Internship in Research and Teaching	3-6
RLL 8800	Seminar in Theory and Research in Literacy I: Foundational Theory and Research	3
RLL 8810	Seminar in Theory and Research in Literacy II: Diversity, Contexts, and Communities	3

### Elective Courses

Code	Title	Credits
EDS 9620	Doctoral Seminar in Educational Sociology	3
EHP 9600	Doctoral Seminar in Philosophy of Education	3
TED 8270	Seminar: Issues in Curriculum and Instruction	2-6

### Dissertation Courses

Code	Title	Credits
ED 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
ED 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
ED 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
ED 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
<b>Total Credits</b>		<b>30</b>

## Early and Elementary Education (M.A.T.)

The Master of Arts in Teaching (M.A.T.) in Early and Elementary Education is designed for students who have a bachelor's degree, but who have not completed a Teacher Certification program. It is for those who seek a Michigan Standard Teaching Certification in Early and Elementary Education. The M.A.T. degree in Early and Elementary Education is specific to certification content areas.

Information regarding teaching certificate requirements can be found at the Teaching Certificates (p. 110) section of this bulletin.

## Admission Requirements

Admission to the Master of Arts in Teaching in Early and Elementary Education is contingent upon admission to the Graduate School (p. 21) and the Division of Teacher Education in the College of Education. In order to be eligible for admission, all M.A.T. applicants must meet the requirements set forth by the Graduate School; pass all prerequisite

courses/requirements; and must have a Criminal History Background check completed through Castle Branch.

Specific content areas (e.g., world languages) might have content-specific prerequisites and/or requirements. Candidates may add endorsements (e.g., bilingual education, ESL, etc.) to their certification areas as well.

The Michigan Test for Teacher Certification (MTTC) is required to attain a Michigan Standard Teaching Certification. Wayne State University must receive only official scores directly from the *Evaluation Systems Group of Pearson*, which is the official MTTC testing agency. Scores received directly from students and/or other parties will not be accepted. Students will not be recommended for the Michigan Standard Teaching Certification without official passing test scores. When registering for the MTTC, students should select "Wayne State University (31)" as a "College or University to Receive Scores."

**Admissions moratoria are in effect for the following World Language concentrations: Arabic PK-12, French PK-12, and Spanish PK-12.**

## Degree Requirements (General M.A.T.)

The M.A.T. program is offered as a master's Plan C program only and requires a minimum of thirty credits. Total credit requirements vary based on the applicant's background in his/her teaching field at the undergraduate level and specialized requirements.

All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's regulations (p. 24) governing graduate scholarship and degrees. Requirements for the Master of Arts in Teaching degree must be completed within six years after completion of the first course to be applied to the degree.

Course work for the degree is distributed among three areas: Prerequisite courses, major courses, and concentration courses. A teaching certificate is required in order to receive a M.A.T. degree.

### Common Prerequisite Courses

All M.A.T. Early and Elementary Education students are required to complete the following prerequisite courses, which are required for a Michigan Teaching Certificate. It is recommend that applicants complete all prerequisite courses before admission, however, applicants may be admitted with two or three prerequisite courses remaining.

Note: World Language PK-12 students do not complete the prerequisite courses listed below. World Language students complete prerequisite courses in one of the following languages: Arabic, French, or Spanish. In addition, World Language students must have a passing score on the American Council on the Teaching of Foreign Languages' Oral Proficiency Interview: Arabic - Intermediate High, French - Advanced Low, and Spanish - Advanced Low.

### Prerequisite Courses for B-K Grade Band Concentration

Code	Title	Credits
TED 6020 or TED 2020	Technology Integration in Teaching	3
MAT 1110	Mathematics for Elementary School Teachers I	3
SCE 5100 & SCE 5105 or SCE 2100 & SCE 2105	Integrated Science Content (PK-6) and Integrated Science Lab (PK-6) Integrated Science Content PK-6 and Integrated Science Lab PK-6	4
ELE 6205	Literacy Foundations	3
ELE 6020	Foundations of Early Childhood Education	3

or ELE 2020	Foundations of Early Childhood Education	
ELE 6010	Equitable Partnerships with Families and Communities	3
or ELE 2010	Equitable Partnerships with Families and Communities	
ELE 6035 or ELE 2035	Inclusion, Equity, and Justice in Early Childhood	3
Total Credits		22

### Prerequisite Courses for PK-3 and 3-6 Grade Band Concentrations

Code	Title	Credits
EDP 6210 or EDP 3310	Foundations of Educational Psychology	3
TED 6020 or TED 2020	Technology Integration in Teaching	3
MAT 1110	Mathematics for Elementary School Teachers I	3
MAT 1120	Mathematics for Elementary School Teachers II	3
SSE 5720	Social Studies Disciplines for Elementary Teachers I	3
SSE 6720	Social Studies Disciplines for Elementary Teachers II	3
SCE 5100 & SCE 5105 or SCE 2100 & SCE 2105	Integrated Science Content (PK-6) and Integrated Science Lab (PK-6) Integrated Science Content PK-6 and Integrated Science Lab PK-6	4
TED 6200 & TED 6205 or TED 2200 & TED 2205	Foundations I: Foundations of Education in Urban Spaces and Foundations Field Experience Foundations I: Foundations of Education in Urban Spaces and Foundations Field Experience	3
TED 6210 or TED 2210	Foundations II: Intersections of Culture, Language, Identity and Schooling Foundations II: Intersections of Culture, Language, Identity & Schooling	2
TED 6220 or TED 2220	Foundations III: Foundations of Inclusive Schooling Foundations III: Foundations of Inclusive Schooling	2
ELE 6020 or 2020 only required for PK-3 concentration:		3
ELE 6020 or ELE 2020	Foundations of Early Childhood Education Foundations of Early Childhood Education	
Total Credits		32

### Concentration Requirements B-K Grade Band

Professional Clinical Experiences are integral parts of the program and must be completed during daytime school hours.

Code	Title	Credits
ELE 6210 & ELE 6211	Literacy Methods I (PK-3) and Literacy Clinical Experience (PK-3)	4
ELE 6140	Developmentally Appropriate Practice in Early Childhood and Early Childhood Special Education	3
ELE 6050 & ELE 6055	Intentional and Inclusive Teaching: Infants and Toddlers and Intentional and Inclusive Teaching: Infants and Toddlers Clinical Experience	4

ELE 6040 & ELE 6045	Intentional and Inclusive Teaching: The Content Areas (PK-K) and Intentional and Inclusive Teaching: The Content Areas (PK-K) Clinical Experience	4
ELE 6100	Planning and Implementing Preschool Curriculum	3
ELE 6130	Early Childhood Advocacy, Leadership, and Administration	3
ELE 6080	Intentional and Inclusive Teaching: The Preschool Learning Environment	3
TED 5791	Directed Teaching and Conference for Pre-Kindergarten	6
TED 5792	Directed Teaching and Conference for Early Intervention and Early Childhood Special Education	6
<b>Total Credits</b>		<b>36</b>

## PK-3 Grade Band

Professional Clinical Experiences are integral parts of the program and must be completed during daytime school hours.

Code	Title	Credits
ELE 6041	Intentional and Inclusive Teaching: The Content Areas (PK-K)	3
ELE 6205	Literacy Foundations	3
ELE 6210 & ELE 6211	Literacy Methods I (PK-3) and Literacy Clinical Experience (PK-3)	4
ELE 6225	Literacy Methods II (PK-6)	3
ELE 6600	Social Studies Methods (PK-6)	3
ELE 6350	Mathematics Foundations (PK-6)	3
ELE 6370 & ELE 6375	Mathematics Methods (PK-3) and Mathematics Clinical Experience (PK-3)	4
ELE 6550	Science Curriculum and Methods (PK-6)	2
ELE 6800 & ELE 6805	Methods for Integrated Curriculum and Pedagogy (PK-6) and Clinical Experience for Integrated Curriculum and Pedagogy (PK-6)	5
TED 5780	Student Teaching & Seminar	8
<b>Total Credits</b>		<b>38</b>

## 3-6 Grade Band

Professional Clinical Experiences are integral parts of the program and must be completed during daytime school hours.

Code	Title	Credits
ELE 6205	Literacy Foundations	3
ELE 6215 & ELE 6216	Literacy Methods I (3-6) and Literacy Clinical Experience (3-6)	4
ELE 6225	Literacy Methods II (PK-6)	3
ELE 6600	Social Studies Methods (PK-6)	3
ELE 6350	Mathematics Foundations (PK-6)	3
ELE 6380 & ELE 6385	Mathematics Methods (3-6) and Mathematics Clinical Experience (3-6)	4
ELE 6500	Science Curriculum and Methods (3-6)	3
ELE 6550	Science Curriculum and Methods (PK-6)	2
ELE 6800 & ELE 6805	Methods for Integrated Curriculum and Pedagogy (PK-6) and Clinical Experience for Integrated Curriculum and Pedagogy (PK-6)	5

TED 5780	Student Teaching & Seminar	8
<b>Total Credits</b>		<b>38</b>

## Teach Detroit 3-6 Grade Band

Code	Title	Credits
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### Admission Requirements:

Unique to this concentration is an interest and commitment for working in the Detroit Community and an interview.

### Required Courses (32 Credit Hours)

TED 6210	Foundations II: Intersections of Culture, Language, Identity and Schooling	2
TED 6220	Foundations III: Foundations of Inclusive Schooling	2
ELE 6205	Literacy Foundations	3
ELE 6010	Equitable Partnerships with Families and Communities	3
ELE 6215	Literacy Methods I (3-6)	3
ELE 6225	Literacy Methods II (PK-6)	3
ELE 6380	Mathematics Methods (3-6)	3
ELE 6600	Social Studies Methods (PK-6)	3
TED 5150	Analysis of Elementary Teaching	5
TED 5780	Student Teaching & Seminar	5

### Recommended for adding the PK-3 Grade Band

ELE 6370	Mathematics Methods (PK-3)	
ELE 6210	Literacy Methods I (PK-3)	
ELE 6020	Foundations of Early Childhood Education	
ELE 6041	Intentional and Inclusive Teaching: The Content Areas (PK-K)	

### Other Recommended Education Courses

ELE 6550	Science Curriculum and Methods (PK-6)	
TED 6200	Foundations I: Foundations of Education in Urban Spaces	
TED 6020	Technology Integration in Teaching	
TED 5100	Professional Engagement, Advocacy, and Instructional Planning	
EDP 6210	Foundations of Educational Psychology	
ELE 6200	Diverse Children's Literature for Elementary Teachers	
ELE 6350	Mathematics Foundations (PK-6)	
SSE 5720	Social Studies Disciplines for Elementary Teachers I	
SSE 6720	Social Studies Disciplines for Elementary Teachers II	
ELE 6500	Science Curriculum and Methods (3-6)	
ELE 6800 & ELE 6805	Methods for Integrated Curriculum and Pedagogy (PK-6) and Clinical Experience for Integrated Curriculum and Pedagogy (PK-6)	

Teach Detroit students must complete the following:

Complete Criminal History Background checks.

Demonstrate Teach Detroit professional commitments and dispositions.

Pass Michigan Test for Teacher Certification exams.

Complete Child Study.

Create electronic portfolio.

Upload videos of teaching to GoReact.

Apply for teacher certification through the College of Education upon completion of program.

**Total Credits 32**

## English as a Second Language PK-12

Code	Title	Credits
BBE 5500	Introduction to Bilingual/Bicultural Education	3
LED 6580	Culture as the Basis for Language Teaching	3
LED 6510	Second Language Acquisition and the Teaching of Grammar	3
LED 6520	Teaching English as a Second Language/Foreign Language: Methods I	3
BBE 6850	Applied Linguistics: Issues in Bilingual Education	3
LED 6555	Integration of Language and Content in Language Teaching	3
RLL 6700	Second Language Literacy Development: K-12	3
LED 6565	Assessment in Language Teaching	3

**Total Credits 24**

## Bilingual Education PK-12

Professional Clinical Experiences are integral parts of the program and must be completed during daytime school hours.

*Required: Passing score of at least Advanced Low on the American Council on the Teaching of Foreign Languages' Oral Proficiency Interview in a language approved by the Michigan Department of Education (see advisor for more information).*

Code	Title	Credits
BBE 5500	Introduction to Bilingual/Bicultural Education	3
BBE 6590	Culture and Language in Bilingual/Bicultural Education	3
LED 6555	Integration of Language and Content in Language Teaching	3
LED 6520	Teaching English as a Second Language/Foreign Language: Methods I	3
BBE 6850	Applied Linguistics: Issues in Bilingual Education	3
BBE 6560	Teaching Methods in Bilingual/Bicultural Education	3
RLL 6700	Second Language Literacy Development: K-12	3
LED 6565	Assessment in Language Teaching	3

**Total Credits 24**

## Special Education Concentration: Autism Spectrum Disorder K-12

Students seeking Autism Spectrum Disorder K-12 certification must also complete either the PK-3 or 3-6 grade band requirements. Professional Clinical Experiences are integral parts of the program and must be completed during daytime school hours.

Code	Title	Credits
SED 5000	History, Philosophy, and Ethics of Teaching Students with Disabilities	2
TED 6220	Foundations III: Foundations of Inclusive Schooling	2
SED 5080	Supportive Environments, Engaged Learning	2
SED 5090	Transitions for Students with Disabilities	2
SED 5075	Consultation and Collaboration for Inclusive Teaching	2

SED 6021	Introduction to Teaching Students with Autism Spectrum Disorder	3
SED 6030	Teaching Students with Cognitive, Behavior, and Communication Differences	3
SED 6050	Teaching Students with Communication Differences	3
SED 6060	Teaching Students with Movement and Sensory Differences	2
SED 6070	Assessment and Evaluation of Students with Autism	3
TED 5790	Directed Teaching and Conference for Special Groups	8

**Total Credits 32**

## Special Education Concentration: Cognitive Impairment K-12

Students seeking Cognitive Impairment K-12 certification must also complete either the PK-3 or 3-6 grade band requirements. Professional Clinical Experiences are integral parts of the program and must be completed during daytime school hours.

Code	Title	Credits
SED 5000	History, Philosophy, and Ethics of Teaching Students with Disabilities	2
SED 5080	Supportive Environments, Engaged Learning	2
SED 5090	Transitions for Students with Disabilities	2
SED 5075	Consultation and Collaboration for Inclusive Teaching	2
SED 5110	Introduction to Teaching Students with Moderate/Significant Support Needs	3
TED 6220	Foundations III: Foundations of Inclusive Schooling	2
SED 5121	Language Development and Instruction for Students with Moderate/Significant Support Needs	2
SED 5115	Observation and Assessment of Students with Moderate/Significant Support Needs	3
SED 5125	Teaching Students with Significant/Multiple Support Needs	3
SED 5130	Teaching Students with Moderate Support Needs	3
TED 5790	Directed Teaching and Conference for Special Groups	8

**Total Credits 32**

## World Language PK-12 (for concentrations in Arabic PK-12, French PK-12, and Spanish PK-12)

Professional Clinical Experiences are integral parts of the program and must be completed during daytime school hours.

*Required: Passing score on the American Council on the Teaching of Foreign Languages' Oral Proficiency Interview: Arabic - Intermediate High, French - Advanced Low, and Spanish - Advanced Low.*

Code	Title	Credits
TED 6200 & TED 6205	Foundations I: Foundations of Education in Urban Spaces and Foundations Field Experience	3
TED 6210	Foundations II: Intersections of Culture, Language, Identity and Schooling	2
TED 6220	Foundations III: Foundations of Inclusive Schooling	2



LED 6520	Teaching English as a Second Language/Foreign Language: Methods I	3
LED 6530	Teaching English as a Second Language/Foreign Language: Methods II	3
or LED 6510	Second Language Acquisition and the Teaching of Grammar	
LED 6500	Teaching World Languages in Elementary and Middle Schools: Methods III	3
or LED 6555	Integration of Language and Content in Language Teaching	
EDP 6210	Foundations of Educational Psychology	3
RLL 6700	Second Language Literacy Development: K-12	3
ED 5998	Field Studies	4
TED 5780	Student Teaching & Seminar	8
<b>Total Credits</b>		<b>34</b>

## Secondary Education (M.A.T.)

The Master of Arts in Teaching (M.A.T.) in Secondary Education is designed for students who have a bachelor's degree, but who have not completed a Teacher Certification program. It is for those who seek a Michigan Standard Teaching Certification in Secondary Education. The M.A.T. degree in Secondary Education is specific to certification content areas. Students may attain a Grades 7-12 certification in mathematics, English/Language Arts; integrated science, and social studies. Additionally, students may attain a Grades K-12 certification in World Languages (Arabic, French, or Spanish).

Information regarding teaching certificate requirements can be found at the Teaching Certificates (p. 110) section of this bulletin.

## Admission Requirements

Admission to the Master of Arts in Teaching in Secondary Education is contingent upon admission to the Graduate School (p. 21) and the Division of Teacher Education in the College of Education. In order to be eligible for admission, all M.A.T. applicants must meet the requirements set forth by the Graduate School; pass all prerequisite courses/requirements; and must have a Criminal History Background check completed through Castle Branch.

Specific content areas (e.g., world languages) might have content-specific prerequisites and/or requirements. Candidates may add endorsements (e.g., bilingual education, ESL, etc.) to their certification areas as well.

The Michigan Test for Teacher Certification (MTTC) is required to attain a Michigan Standard Teaching Certification. Wayne State University must receive only official scores directly from the *Evaluation Systems Group of Pearson*, which is the official MTTC testing agency. Scores received directly from students and/or other parties will not be accepted. Students will not be recommended for the Michigan Standard Teaching Certification without official passing test scores. When registering for the MTTC, students should select "Wayne State University (31)" as a "College or University to Receive Scores."

**Admissions moratoria are in effect for the following World Language concentrations: Teaching Major: Arabic, Teaching Major: Arabic K-12, Teaching Major: French, Teaching Major: French K-12, Teaching Major: Spanish, and Teaching Major: Spanish K-12.**

## Degree Requirements (General M.A.T.)

The M.A.T. program is offered as a master's Plan B and requires a minimum of thirty credits. Total credit requirements vary based on the

applicant's background in his/her teaching field at the undergraduate level and specialized requirements.

All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 24) regulations governing graduate scholarship and degrees. Requirements for the Master of Arts in Teaching degree must be completed within six years after completion of the first course to be applied to the degree.

Course work for the degree is distributed among three areas: Prerequisite courses, major courses, and concentration courses. A teaching certificate is required in order to receive a M.A.T. degree.

## Common Prerequisite Courses

All M.A.T. Secondary Education students are required to complete the following courses, which are required for a Michigan Teaching Certificate.

Code	Title	Credits
EDP 5480	Adolescent Psychology	2-3
or EDP 6210	Foundations of Educational Psychology	
BBE 5000	Multicultural Education in Urban America	2
SED 5010		2
TED 6020	Technology Integration in Teaching	3

## Elective Courses

Elective Courses, if needed for diversity in the program, are selected in consultation with an advisor at the time a Plan of Work is prepared.

## Professional Field Experiences

Professional Field Experiences (pre-student teaching and student teaching) are integral parts of all M.A.T. programs, and must be completed during daytime school hours. The following courses involve field experiences.

Code	Title	Credits
TED 5150	Analysis of Elementary Teaching	3,5
TED 5650	Pre-Student Teaching Field Experience for Secondary Majors	5
TED 5780	Student Teaching & Seminar	1-12
TED 5790	Directed Teaching and Conference for Special Groups	1-15
BBE 6600	Internship in Bilingual/Bicultural Teaching	2-12

Information on the student teaching phases of the program is presented at Student Teaching of this bulletin.

## Secondary Education (M.A.T. Program)

Code	Title	Credits
<b>Major Requirements</b>		
Courses must be completed prior to student teaching		
EHP 7600	Philosophy of Education	2
TED 5650	Pre-Student Teaching Field Experience for Secondary Majors	5
TED 5780	Student Teaching & Seminar	8
TED 7000	Introductory Master's Seminar <sup>1</sup>	3
ED 7999	Terminal Master's Seminar and Essay or Project	3
<b>Total Credits</b>		<b>21</b>



<sup>1</sup> TED 7000 is not required for students with an English Education Concentration.

## Concentration Requirements

Two specific methods courses are required for each of the concentrations below and must be selected in consultation with an advisor. Some programs require a third methods course.

The student teaching assignment (TED 5780) for this program requires a full-time assignment to a public school for a minimum of one University semester.

Applicants should consult with the appropriate advisor prior to filing an admissions application in order to determine the appropriateness of various major and minor areas of study to the student's interest.

### Bilingual-bicultural Education

Code	Title	Credits
BBE 5500	Introduction to Bilingual/Bicultural Education	3
BBE 6560	Teaching Methods in Bilingual/Bicultural Education	3
BBE 6590	Culture and Language in Bilingual/Bicultural Education	1-3
BBE 6600	Internship in Bilingual/Bicultural Teaching	2-12
BBE 6850	Applied Linguistics: Issues in Bilingual Education	3
LED 6520	Teaching English as a Second Language/Foreign Language: Methods I	3
LED 6555	Integration of Language and Content in Language Teaching	1-3
Select six credits in methods courses in the major field, selected in consultation with the appropriate major advisor		6
<b>Total Credits</b>		<b>22-36</b>

All students in the bilingual-bicultural program must successfully complete the language proficiency examinations in English and the designated language of his/her individual program prior to taking courses for this minor.

### English as a Second Language

Code	Title	Credits
BBE 6600	Internship in Bilingual/Bicultural Teaching	2-12
BBE 6850	Applied Linguistics: Issues in Bilingual Education	3
LED 6510	Second Language Acquisition and the Teaching of Grammar	3
LED 6520	Teaching English as a Second Language/Foreign Language: Methods I	3
LED 6555	Integration of Language and Content in Language Teaching	1-3
LED 6565	Assessment in Language Teaching	1-3
LED 6580	Culture as the Basis for Language Teaching	2-4
Select six credits in methods courses in the major field, selected in consultation with the appropriate major advisor		6
<b>Total Credits</b>		<b>21-37</b>

### English Education

Code	Title	Credits
EED 5200	Methods of Teaching English (7-12)	3
EED 6120	Teaching Composition Methods (7-12)	3
EED 6210	Language, Literacy, and Learning	3

EED 6310	Young Adult Literature	3
EED 6330	Teaching Literature Methods (7-12)	3
<b>Total Credits</b>		<b>15</b>

### Mathematics Education

Code	Title	Credits
MAE 5150	Methods and Materials of Instruction: Secondary School Mathematics	3
MAE 6050	Teaching Mathematics Methods in the Middle Grades	3
Two MAE elective courses chosen in consultation with an advisor.		6

### Science Education

(Includes concentrations in: Teaching Major: Biology, Teaching Major: Chemistry, Teaching Major: Earth/Space Science, Teaching Major: Integrated Science, and Teaching Major: Physics.)

Code	Title	Credits
SCE 5060	Methods and Materials of Instruction in Secondary School Science I	3
SCE 5070	Methods and Materials of Instruction in Secondary School Science II	3
Select two of the following courses:		6
SCE 6040	Advanced Studies in Teaching Science in the High School	
SCE 6080	Teaching Environmental Studies	
SCE 7010	Special Topics in Science Education	
<b>Total Credits</b>		<b>12</b>

### Social Studies Education

(Electives toward concentrations may be approved courses at the 5000 level and above in any of the following disciplines: Economics, Political Science, Geography, and History.)

Code	Title	Credits
SSE 6710	Methods and Materials of Instruction in Secondary Social Studies	3
SSE 6730	New Perspectives in Social Studies Education	3
One SSE elective course chosen in consultation with an advisor.		6
<b>Total Credits</b>		<b>12</b>

### Career and Technical Education

Code	Title	Credits
CTE 5401	Instructional Practices for the Career and Technical Education Classroom: Module 1	1
CTE 5402	Instructional Practices for the Career and Technical Education Classroom: Module 2	1
CTE 5403	Instructional Practices for the Career and Technical Education Classroom: Module 3	1
CTE 5404	Instructional Practices for the Career and Technical Education Classroom: Module 4	1
CTE 5405	Instructional Practices for the Career and Technical Education Classroom: Module 5	1
CTE 5406	Instructional Practices for the Career and Technical Education Classroom: Module 6	1
CTE 6010	History and Principles of Career and Technical Education	3

**Total Credits****9**

There is also a requirement of two years (4000 hours) of recent and relevant work experience (within the past five years) in an approved vocational occupation for this program.

## World Language Education

(Includes concentrations in: Teaching Major: Arabic, Teaching Major: Arabic K-12, Teaching Major: French, Teaching Major: French K-12, Teaching Major: Spanish, and Teaching Major: Spanish K-12.)

Code	Title	Credits
LED 6510	Second Language Acquisition and the Teaching of Grammar	3
LED 6520	Teaching English as a Second Language/Foreign Language: Methods I	3
LED 6530	Teaching English as a Second Language/Foreign Language: Methods II	2-3
LED 6580	Culture as the Basis for Language Teaching	2-4
<b>Total Credits</b>		<b>10-13</b>

K-12 Endorsement: A major in a world language and additional courses are required for the K-12 option. Please see an advisor for more information.

Students must complete the language proficiency examination in the designated language of his/her program prior to taking courses for this program.

## Art Education (M.Ed.)

*An admissions moratorium is in effect for the M.Ed. with a major in Art Education.*

*The M.Ed. with a major in Art Education and a concentration in Art Therapy remains open to new applicants. Please contact the Division of Teacher Education for more details.*

## Art Education (Visual Art Education) (M.Ed.)

The Art Education program is committed to creating effective art educators in both traditional and contemporary instructional pedagogies and techniques. Emphasis is placed on developing high-quality educators with respect to teaching, personal disposition, and content knowledge.

While recognizing that the teacher preparation process is unique to each individual, we believe that the best teachers are those who continually examine their practice to effectively impact today's learners.

The Master of Education degree is designed to assist teachers who possess certification in visual arts education in developing greater skills in various media, innovative teaching methods, and curriculum development. This level of preparation will increase their level of effectiveness and innovation as teachers, assist in the creation of a diverse and interdisciplinary curriculum, and provide opportunities for advancement at the school and district levels.

## Admission Requirements

Students applying to this program must have a Michigan teaching certificate in Visual Arts Education. It is possible to teach and work full-time while pursuing coursework toward the Master in Education degree.

To be considered for the M.Ed. program in Art Education, applicants must present evidence of:

1. A bachelor's degree or higher in Visual Arts Education, Studio Art, or Fine Arts from an accredited college or university.
2. Verification of Teacher Certification.
3. An overall grade point average of 3.0 or higher.
4. Portfolio demonstrating student's competence in art. Portfolio requirements can be obtained by contacting Anita Ricks-Bates, Program Coordinator for Art Education, via e-mail at ad8045@wayne.edu

## Art Therapy Concentration (M.Ed.)

Art Therapy is a concentration available in the Master of Education in Art Education degree program. In addition to the admission requirements stated above, students must submit letters of recommendation, an autobiographical statement, and a digital portfolio. A teaching certificate is NOT required for the Art Therapy program. A concentration in Art Therapy is also available as part of the M.A. in Counseling in the Division of Theoretical and Behavioral Foundation.

## Art Education (Visual Art Education) (M.Ed.)

This program requires thirty credits in course work:

Code	Title	Credits
TED 7000	Introductory Master's Seminar	3
ED 7999	Terminal Master's Seminar and Essay or Project	3
Professional education courses		6
Additional Art Education Courses		18
<b>Total Credits</b>		<b>30</b>

Eighteen of the thirty credits required must be in the art education major. The intent is that the thirty credits will comprise a unified, meaningful curriculum extending each student's ability as an artist, a scholar, and a teacher. All coursework must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

## Art Therapy (M.Ed.)

This program is offered as a master's Plan B. A minimum of forty-eight credits is required for this concentration:

Code	Title	Credits
Art therapy		24
General professional sequence		6
Psychopathology		3
Research		6
Practicum and internship		9
<b>Total Credits</b>		<b>48</b>

A related essay or project of substantial quality concludes the program. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees. Interested candidates should contact the Art Education & Art Therapy office for additional information: Room 163, Community Arts Building; telephone: 313-577-1823.

# Teaching and Learning (M.Ed.)

The Master of Education (M.Ed.) in Teaching and Learning is for teachers and other professionals who wish to enhance their content and pedagogical knowledge, as well as research skills in teaching and learning. Program activities engage students in the study of teaching and learning using current theoretical developments in order to:

- 1. develop curriculum illustrating best practices and
- 2. research inquiries in areas of their interest.

The theoretical knowledge and research skills acquired in this program are an important aspect of an educator's professional growth and essential to those interested in taking on leadership roles and/or pursuing another advanced degree in the future.

## Admission Requirements

Applicants must meet requirements for admission to the Graduate School (p. 21) (a minimum undergraduate degree GPA of 2.75 for regular admission and a GPA of 2.50 for qualified admission). In addition, prior coursework or a teaching endorsement in the field of study is required for admission.

The Master of Education degree requires a minimum of thirty credits, at least twenty-four of which must be taken at Wayne State University. The program is offered under master's degree plan 'B,' which includes completion of a terminal seminar and essay or project.

The following courses are required of all students in the program (12 credit hours): The remaining credit hours will come from the area of the concentration (18 to 24 credits). The total number of credit hours for the degree will vary from 30 to 36 depending on the area of the concentration.

Code	Title	Credits
TED 7000	Introductory Master's Seminar	3
ED 7999	Terminal Master's Seminar and Essay or Project	3
TED 7030	Foundations of Teaching and Learning	3
TED 7060	Inclusive Education, Curriculum and Pedagogy	3
Total Credits		12

Concentrations include:

- Bilingual/Bicultural Education, which may lead to a teaching endorsement; Online
- Early Childhood Education, which may lead to a teaching endorsement
- English as a Second Language, which may lead to a teaching endorsement; Online
- English Education
- Foreign Language Education
- Literacy Instructional Coaching Pk - 8, Online
- Mathematics Education
- Peace and Conflict Studies
- Science Education (*An admissions moratorium is in effect for this concentration.*)
- Special Education, which may lead to a teaching endorsements in one of two areas:
  - Cognitive Impairment
  - Autism Spectrum Disorder

# Bilingual Education (Bridge Graduate Certificate)

The Graduate Bridge Certificate in Bilingual Education leads to an endorsement to an existing Michigan teaching certificate. Students who complete this Graduate Bridge Certificate Program as well as successfully pass the appropriate Michigan Test for Teacher Certification subject area examination will earn this endorsement. As a bridge program this Graduate Certificate allows students to apply all of their course work from this certificate to the Master of Education in Teaching and Learning degree with a concentration in Bilingual-Bicultural Education. The Graduate Bridge Certificate courses should be applied to a masters degree program within five years of the first course completed.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Additionally, applicants must possess a valid Michigan teaching certificate and must have successfully completed the American Council on the Teaching of Foreign Languages' (ACTFL's) Oral Proficiency Interview (OPI) in the (nonEnglish) designated language. For more information, please review the following website: <http://www.testing.wayne.edu/>

The Bridge Certificate in Bilingual Education requires a minimum of twenty-one credits as listed below. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

Code	Title	Credits
Required Courses		
BBE 5500	Introduction to Bilingual/Bicultural Education	3
BBE 6560	Teaching Methods in Bilingual/Bicultural Education	3
Select one of the following:		3
BBE 6590	Culture and Language in Bilingual/Bicultural Education	
LIN/ENG 5770	Sociolinguistics	
BBE 6600	Internship in Bilingual/Bicultural Teaching	2
BBE 6850	Applied Linguistics: Issues in Bilingual Education	3
or LED 6520	Teaching English as a Second Language/Foreign Language: Methods I	
LED 6555	Integration of Language and Content in Language Teaching	1
LIN/ENG 5730	English Grammar	3
RLL 6700	Second Language Literacy Development: K-12	3
Total Credits		21

# English as a Second Language (Bridge Graduate Certificate)

The Graduate Bridge Certificate in English as a Second Language (ESL) leads to an endorsement on an existing Michigan teaching certificate. In order to be eligible for the program, students must have an existing Michigan teaching certificate. Upon the completion of the Bridge Certificate Program, students are encouraged to take the appropriate Michigan Test for Teacher Certification subject area examination to earn the endorsement.

This Graduate Bridge Certificate program allows students to apply all of their coursework for the Certificate to the Master of Education in

Teaching and Learning degree with a concentration in English as a Second Language if they decide to pursue that degree. The Graduate Bridge Certificate courses can be applied to a masters degree program within five years of the first course completed.

**Admission** to this program is contingent upon admission to the Graduate School (p. 21) and the College of Education (p. 93). Additionally, applicants must possess a valid Michigan teaching certificate.

## Elementary Mathematics Specialist: Advanced (Graduate Certificate)

*An admissions moratorium is in effect for these programs, beginning with the Spring/Summer 2023 semester and remaining in place through the Winter 2027 semester.*

The GCEMS-Adv prepares candidates to be curriculum specialists, teacher leaders, or coaches who are responsible for supporting effective mathematics instruction and student learning at the classroom, school, district, or state levels. The program will provide professionals with a deep and broad knowledge of mathematics content and pedagogy.

### Admissions Requirements

Applicants must have completed the Graduate Certificate in Elementary Mathematics Specialist: Introductory (p. 120), hold an elementary teaching certificate and must meet requirements for admission to the Graduate School (p. 21).

### Program Requirements

A total of 12 credit hours is required for the GCEMS-Adv, including one MAE course not previously completed and one course from CED, EDA or LDT. Course selections are made from a list of courses in consultation with a program advisor, and are tailored to the student's background and school needs.

No transfer credit will be accepted for a certificate program, and no more than nine semester credits taken in this classification may be applied toward a graduate degree, subject to the approval of the relevant academic unit and graduate office.

## Elementary Mathematics Specialist: Introductory (Graduate Certificate)

*An admissions moratorium is in effect for these programs, beginning with the Spring/Summer 2023 semester and remaining in place through the Winter 2027 semester.*

The GCEMS-Intro prepares candidates to be instructional specialists who are responsible for supporting effective mathematics instruction and student learning at the classroom or school level. This program will provide teachers with enhanced knowledge of mathematics content, expertise in using and helping others use effective practices, and the ability to support efforts that help all students learn mathematics in school settings.

### Admission Requirements

Applicants must hold an elementary teaching certificate and must meet requirements for admission to the Graduate School (p. 21).

### Program Requirements

A total of 12 credit hours is required for the GCEMS-Intro, including the two required courses (MAE 6400 and MAE 6150) and at least one course at the 7000 level or higher. Course selections are made from

the Mathematics Education (MAE) courses in consultation with a program advisor, and are tailored to the student's background and school needs.

No transfer credit will be accepted for a certificate program, and no more than nine semester credits taken in this classification may be applied toward a graduate degree, subject to the approval of the relevant academic unit and graduate office.

## Curriculum and Instruction (Education Specialist Certificate)

The Teacher Education Division offers a number of education specialist programs at the elementary and secondary levels. These certificate programs are designed to strengthen the educational background of teachers, administrators, and other education professionals.

Admission to this program is contingent upon admission to the College of Education (p. 96) and the Graduate School (p. 21).

These certificate programs require thirty credits beyond the master's degree. The individual student's professional needs and interests are taken into account in determining the specific content of his/her program. The typical plan includes course work found in one of the following concentrations, which are specialized professional areas. Students must select at least once concentration. All course requirements for the various concentrations are selected in consultation with an advisor. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

- Art Education
- Bilingual-Bicultural Education
- Early Childhood Education
- Elementary Education
- English as a Second Language
- English Education - Secondary
- K-12 Curriculum (Special Education: Autism Spectrum Disorder and Cognitive Impairment)
- Mathematics Education - Secondary
- Reading, Language and Literature
- Science Education - Secondary
- Social Studies Education - Secondary

## Curriculum and Instruction (Ed.D.)

*An admissions moratorium is currently in effect for this program.*

The Doctor of Education (Ed.D.) program prepares professional educators and researchers for positions in institutions of higher learning, educational research centers, state and national education agencies, and intermediate and local school districts. Advanced programs are designed for those individuals who are committed to the educational renewal of urban America; whose career goals emphasize the development and improvement of curriculum and instruction; who desire to prepare themselves for leadership roles in various areas of curriculum and educational research; and who will serve as agents of change, creating and expanding the varied institutions and programs needed for the continuing development of educators. This program also serves those interested in the educational aspects of business and industry, health and social services, and other areas that require expertise in curriculum and instruction.



Based on pure and applied research in instruction and curriculum, doctoral study incorporates formal classroom instruction, independent study, and direct, clinical experience in a variety of field settings. It reflects

- 1. the legitimacy of the emerging pattern of inter-institutional partnerships in teacher education at all levels;
- 2. the significance of the diverse nature of metropolitan society; and
- 3. the importance of the integration of theory, research, and practice as the basis for sound professional development.

Admission to certain majors and concentrations in the doctoral program may be limited by the availability of faculty advisors. Prior to applying, students should consult with an advisor in 489 Education to discuss current admission limitations.

The College of Education has specific requirements for admission to doctoral programs.

Courses in the field of concentration in each program are selected in consultation with an advisor to develop a Plan of Work. All students in content-specific concentrations under the major of Curriculum and Instruction are required to complete TED 8350; TED 9130 is recommended but not required. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

The K-12 curriculum (Curriculum Studies) area of emphasis, within the curriculum and instruction program, requires the following courses in the major area:

Code	Title	Credits
TED 8350	Basic Principles of Curriculum and Instruction	3
TED 9130	Doctoral Seminar in Curriculum and Instruction	3

## K-12 Curriculum Concentration

The doctoral program adopts an interdisciplinary approach to teaching and learning, acknowledging the relationship among the learner, the learning, and the learning environment and the consequences this approach has for educational theory, policy, and practice. The program emphasizes the interrelationship between cultural/linguistic diversity and learning and utilizes learners' experiences in curriculum studies. The socio-cultural context of learning in the educative process promotes equity and excellence within larger political and institutional settings. The important frames guiding the doctoral study are the integration of theory and research; the importance of reflection in learning; the role of gender, race, ethnicity, culture, and class as social constructions, which profoundly impact and inform teaching and learning; and the establishment of collaborative partnerships for community-based research. The doctoral program provides a forum that brings together the latest academic and policy discussions, and promotes critical inquiry, discourse, and debate, on the often complex interconnections in education.

## Theoretical and Behavioral Foundations

*Interim Assistant Dean:* William Hill  
*Office:* 361 Education Building; 313-577-1805  
<https://education.wayne.edu/>

The Division of Theoretical and Behavioral Foundations includes degree programs in educational evaluation and research, counseling, educational psychology, school and community psychology, counseling psychology,

and rehabilitation counseling and community inclusion. The Division is designed to facilitate a realization of the following aims:

- 1. to integrate the educational experiences and course offerings;
- 2. to perform a service function in meeting the needs of those enrolled in other divisions within the College;
- 3. to provide degree and specialist programs for those who are majoring in a particular field of the division;
- 4. to provide students with an opportunity to study those aspects of educational thought and practice that are interdisciplinary as well as foundational;
- 5. to formulate programs looking toward the development of new combinations of specialties, as in
  - a. counseling-psychology,
  - b. pupil personnel managers in school systems,
  - c. utilization of theoretical and behavioral foundations in teacher education,
  - d. underlying philosophical premises of educational programs and practices; and
- 6. to design interdisciplinary, cross disciplinary, and multidisciplinary experiences for and with students.

## Counselor Education

The counselor education unit offers graduate counseling programs for those professionals committed to being effective counselors in elementary and secondary schools, colleges, universities, and private and public agencies. The unit offers degree programs appropriate for counseling work in K-12 school settings, community agencies, substance abuse treatment centers, sports and exercise facilities, corporate structures, medical institutions, nursing homes, rehabilitation agencies/centers and independent practice.

All applicants will be evaluated with respect to their potential for being effective counseling professionals. Admission decisions are based on a review of the application and a personal interview with the appropriate admission committee. Acceptance is dependent upon the applicant's professional potential, academic and professional background, and professional career goals.

The counselor education unit offers a Master of Arts program with a major in clinical mental health and school counseling. Additional training may be completed in art therapy, and rehabilitation counseling. A rehabilitation counseling major in the Master of Arts program includes training in disability management, disability leadership, career development, job placement supported employment, adjustment counseling and vocational evaluation.

All programs include a practicum and internship clinical experience and a terminal masters seminar and project.

**Counseling Accreditation:** The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council on Postsecondary Accreditation (COPA), has conferred accreditation to the M.A. in Counseling with concentrations in Clinical Mental health and School Counseling, and the Ed.D and Ph.D programs in counselor education and supervision. In addition, the Council on Rehabilitation Education accredits the Rehabilitation Counseling major (CORE).

**The Education Specialist Certificate** program is intended for guidance professionals who want to improve their competence in counseling. Since this is a professional certificate program, persons considering applying should confirm that they have the prerequisite education and experience



prior to making formal application. This certificate is not an entry level program, but builds on master's level preparation in counseling.

**The Doctor of Philosophy** is generally required for those intending to teach, conduct research, or provide counseling services in universities and colleges. In addition, those desiring counseling positions in governmental or community agencies, and the like, may be required to take advanced training in counseling theory and practice, consultation, scholarly research, and supervision of counselors.

**The Doctor of Education** program consists of advanced courses designed for those persons who wish to become directors of guidance or pupil personnel programs and coordinators or consultants in guidance and counseling programs in K-12 and intermediate school districts. The Ed.D. provides opportunities to improve skills and competencies as school counselors in counseling, program development, career development, consultation research, and supervision of counselors.

**Time Limitation:** Requirements for the Master of Arts or Master of Education degree must be completed within six years after completion of the first course applicable toward the degree. All degree requirements for the doctoral program must be completed within seven years from the time of official admission.

**Writing Style:** The counselor education unit has adopted the *Publication Manual of the American Psychological Association* as the style guide for preparation of all papers submitted in fulfillment of program requirements.

**Class and Internship Scheduling:** All counseling program courses are offered only in the evening hours (4:00 p.m. to 10:15 p.m.), permitting working students the opportunity to pursue their educational endeavors. Additionally, the counseling program will arrange with community settings (i.e., agencies, schools, institutions) whereby working students may complete the clinical portions of their programs as well as fulfill employment obligations elsewhere.

**Licensure:** Individuals in the counseling profession who practice in Michigan must seek professional licensure. Satisfactory completion of degree requirements in the counselor education master's and doctoral programs allows the student to apply for the Limited Licensed Professional Counselor (LLPC) credential in the State of Michigan. The Educational Specialist Certificate program does not meet Michigan eligibility requirements for the professional counselor licensure. Information on licensure may be obtained from the:

Michigan Department of Community Health  
Board of Counseling  
P.O. Box 30670  
Lansing, Michigan 48909  
telephone: 517-335-0918

Effective with the passing of PA 288 (July 10, 2000) an amendment in Act 451 of the Public Acts of 1976 (the Revised School Code), individuals who complete the school counseling specialization (with or without a teaching certificate) may be employed as school counselors and recommended for the new School Counselor License (SCL). All applicants for the School Counselor License (SCL) must have received a passing score on the State of Michigan, Department of Education's Michigan Test for Teacher Certification (MTTC) Guidance Counselor Examination. MTTC examination scores must be furnished directly to Wayne State University by the MTTC testing agency, Evaluation Systems Group of Pearson. When registering for the MTTC, select "Wayne State University (31)" as a "College or University to Receive Scores."

Students whose examination scores were not released to Wayne State University should request an original score report from Evaluation

Systems Group of Pearson. An original score report is required by the Michigan Department of Education for verification of test scores.

**Counseling Accreditation:** The Council for Accreditation of Counseling and Related Educational Programs (CACREP), a specialized accrediting body recognized by the Council on Postsecondary Accreditation (COPA), has conferred accreditation to the following programs in the counselor education program: M.A. with various specializations and the Ed.D. and Ph.D. programs in counselor education and supervision. In addition, the Rehabilitation Counseling and Community Inclusion major is accredited by the Council on Rehabilitation Education (CORE).

## Educational Psychology

The Master's Degree programs in Educational Psychology are primarily concerned with the preparation of individuals working in settings such as schools, behavioral mental health care settings, business and other fields, who wish to develop skills and knowledge in the application of psychology. At the doctoral level, our program is focused on research and university teaching contexts. The Applied Behavior Analysis training emphasized working in clinical settings with people with Autism.

There is one Master of Education (M.Ed.) program in Educational Psychology, geared toward those who want to apply psychology/educational psychology to their current professions (e.g., teaching). Two majors are offered for the Master of Arts (M.A.) degree: School and Community Psychology and Counseling Psychology. The School and Community psychology program offers two years of course work, plus a one-year internship. Satisfactory completion of the School and Community Psychology program allows the student to be certified as a school psychologist by the State of Michigan. It also allows the student to apply for a Limited License to Practice as a Psychologist (L.L.P.) in the State of Michigan. The major in Counseling Psychology has an emphasis in individual and marriage and family therapy and offers two years of course work plus one or two semesters of a clinical internship. Satisfactory completion of the Counseling Psychology program allows the student to qualify for the Limited License to Practice as a Psychologist in the State of Michigan and, with additional coursework, a State of Michigan license as a Marriage and Family Therapist. The Ph.D. in Educational Psychology has a concentration in Learning and Instruction science and is focused on educational psychology theory and research. Additionally, an Applied Behavior Analysis Graduate Certificate is offered for those who already hold a master's degree, or it can be accomplished as part of the M.Ed. in Educational Psychology. Through this training, students become eligible to sit for the Board Certified Behavior Analyst (BCBA) exam, which is part of earning the BCBA credential. All of these programs are described in more detail below.

The prospective student should recognize that a grade point average of 3.0 with no more than one earned grade of 'C' plus is required to continue in all of these programs and to graduate. The majors of School and Community Psychology and Counseling Psychology involve, in addition to course requirements, clinical experience in school and/or agency settings. Due to the clinical nature of the courses and the internship, both majors require students to have active liability coverage throughout the program. Retention in the program, graduation, and recommendation for certification/licensing approval depend upon demonstrated clinical skill as well as on the student's academic achievement. The staff will try to arrange for psychological practicums and internships in either a school system or a community mental health facility in keeping with program requirements. The Applied Behavior Analysis training also involves intensive training working with children in clinical settings and thus requires successful demonstration of both clinical and academic skills.

In addition to completing all procedures for admission to the Graduate School, each applicant must complete an admissions form obtained from the program area website (<http://coe.wayne.edu/tbf/>) for the program of interest, and follow those instructions carefully. Applicants are strongly encouraged to contact the program area secretary to ensure they have received complete and updated application and program information.

- Counseling (M.A.) (p. 124)
- Counseling (M.Ed.) (p. 127)
- Counseling (Education Specialist Certificate) (p. 124)
- Counseling (Ed.D.) (p. 127)
- Counseling (Ph.D.) (p. 127)
- Applied Behavior Analysis (M.S.) (p. 123)
- Counseling Psychology (M.A.) (p. 128)
- Counseling Psychology (Ph.D.) (p. 128)
- Educational Psychology (Ph.D.) (p. 130)
- School and Community Psychology (M.A.) (p. 130)
- Advanced Studies in School Psychology (Graduate Certificate) (p. 123)

## Advanced Studies in School Psychology (Graduate Certificate)

*An admissions moratorium is in effect for this program.*

Admission to this program is only for students in the M.A. program in School & Community Psychology. Admission is contingent upon admission to the Graduate School (p. 21). Students must be in good academic standing in the School and Community Psychology M.A. program to apply and enroll in the Certificate program. Students will be admitted concurrently to the Certificate program for the Spring/Summer of second year of the Master's program.

The last twelve credits of the School and Community Psychology program are the internships, which are the basis for this Graduate Certificate and are required for full completion of this program and for recommendation for state school psychology certification and state psychology limited licensing (LLP). Students are required to complete a professional portfolio, to attend supervision meetings, and to conduct a comprehensive case study and presentation at the end of the Certificate program. Students are evaluated by both university faculty and field supervisors on both their professional skills and their professional behaviors and attitudes as outlined by the National Association of School Psychologists. During Spring/ Summer of the second year, students will complete their Master's requirements by enrolling in EDP 8320 and EDP 8330 for a total of six credits and during this time period, students will be concurrently enrolled in the M.A. and Graduate Certificate program, and these credits will count toward both the Master's degree and the Certificate. Graduate School policy permits nine credits to be applied to fulfill the requirements of both a Certificate and a Master's degree. Students will complete the final six credits of the Certificate by enrolling in EDP 8360 during the third year of the program. The curriculum is outlined below.

Code	Title	Credits
EDP 8320	Practicum in Clinical Procedures I	3
EDP 8330	Practicum/Field Experience in School Psychology	3
EDP 8360	Internship in School Psychology	6
Total Credits		12

All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

## Applied Behavior Analysis (M.S.)

The Master of Science in Applied Behavior Analysis trains practitioners extensively in applied behavior analysis with a focus on treating autism. This online program includes the behavior analytic coursework needed to qualify to sit for the Board Certified Behavior Analyst (BCBA) exam. To earn a BCBA credential students must complete a master's degree, complete the required behavior analytic coursework, and complete the required field experience hours outlined by the Behavior Analyst Certification Board. Our cohorts begin each fall and classes are scheduled primarily during one or two days per week. New students enter the program as a cohort and must take their classes in sequence together as outlined by the program—it is a block scheduled program with no variations permitted. The cohort model includes a combination of supported and independent learning through lecture and practiced-based hands-on learning. Cohort mates work collaboratively within an interactive learning environment using hands-on learning activities throughout the scheduled courses to help students take their learning experiences into the workplace for a more seamless crossover between classroom and field placement activities. This instills a sense of professional community not only during the program, but as students move into the field as practitioners. Our program emphasizes the importance of intensive learning while in the program as well as the need for collaborative lifelong learning.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). A 2.75 minimum GPA is required for consideration for the program. Applicants apply both online to Graduate Admissions and directly to the program. Additionally, applicants must provide three letters of recommendation, complete a program area application including a professional essay, and attend a personal interview.

## Program Requirements

There are a total of 40 credits for full program completion. Students are required to complete each semester sequentially, with full-time enrollment. The plan of work will include a Capstone project requiring it to be designated as Plan C (coursework). Transfer credits are not accepted into this program.

Code	Title	Credits
EDP 7101	Foundations of Applied Behavior Analysis	3
EDP 7112	Conceptual Analysis in Applied Behavior Analysis	3
EDP 7106	Field Experience in Applied Behavior Analysis I	2
EDP 7102	Assessment Techniques in Applied Behavior Analysis	3
EDP 7104	Research Methods in Applied Behavior Analysis	4
EDP 7107	Field Experience in Applied Behavior Analysis II	2
EDP 7103	Applied Behavior Analysis Treatment Planning	4
EDP 7108	Field Experience in Applied Behavior Analysis III	2
EDP 7991	Capstone Project in Applied Behavior Analysis: Introduction	1
EDP 7109	Field Experience in Applied Behavior Analysis IV	2
EDP 7111	Advanced Applied Behavior Analysis Treatment Planning	4
EDP 7992	Capstone Project in Applied Behavior Analysis I	2
EDP 7105	Ethical Practice in Applied Behavior Analysis	3

EDP 7113	Organizational Behavioral Management in Applied Behavior Analysis	3
EDP 7993	Capstone Project in Applied Behavior Analysis II	2
<b>Total Credits</b>		<b>40</b>

All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

## Counseling (Education Specialist Certificate)

The Educational Specialist Certificate program in Counseling is intended for those who are presently counseling professionals who want to improve their competency in counseling and/or receive training in counselor clinical supervision. The Specialist Certificate does not meet eligibility requirements for the Professional Counselor License in the State of Michigan.

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). After admission to the College, program requirements also include a master's degree from an accredited graduate school in counseling, rehabilitation counseling, or a closely related field that includes entry-level curricular experiences and demonstrated knowledge and competency in each of eight common counseling areas required by CACREP:

- human growth and development
- social and cultural foundations
- helping relationships
- groups
- life and career development
- appraisal
- research and evaluation
- professional orientation

A minimum grade point average of 3.0 ('B' or above) on the master's degree is required for admission consideration. Additionally, applicants to the educational specialist certificate program must hold professional counselor licensure (LLPC or LPC) prior to admission.

Applicants are also required to conduct a single 45-minute counseling session in the College of Education Counseling and Testing Center. This session will be audio and/or video taped for evaluation by the Advanced Admissions Advisory Committee. An interview with the Advanced Admissions advisory Committee is also required.

### Program Requirements

A minimum of thirty credits is required for this certificate. Course requirements for the program are determined in consultation with an advisor. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

## Counseling (M.A.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission to the counselor education program requires a grade point average of 2.75 or above for the undergraduate course work.

Program admission requirements include: a personal interview with an admission committee and a typewritten autobiographical statement reflecting the applicant's respective personal and professional history with a statement of rationale for seeking admittance to the program.

Admission to the Art Therapy concentration also requires submission of a portfolio of original artwork, to be evaluated by art therapy faculty, that demonstrates competence with art materials

## Degree Requirements

The MA in Counseling requires a minimum of 60 credit hours and is offered under Plan A or C options in six concentrations as listed below. All coursework must be completed in accordance with the regulations of the Graduate School and the College of Education.

## Concentrations

### Clinical Mental Health Counseling (60 credit hours)

The Clinical Mental Health Counseling (CMHC) concentration is intended to train professional counseling generalists. Typically, students completing this concentration are employed in public and private mental health settings, employment agencies, youth service bureaus, human resource development agencies, employee assistance programs, hospice organizations, post-secondary educational settings, correctional institutions, welfare departments, local community service agencies, and religious institutions. Students are encouraged to use elective courses and their practicum and internship clinical experiences to develop additional areas of specific expertise for their preferred setting. Individuals who complete the CMHC concentration receive training in the knowledge and skills necessary to work with clients to promote mental wellness across the lifespan.

Students who complete the CMHC concentration are eligible to apply for licensure as professional counselors (LPC), provided they fulfill state-mandated requirements, which include passing a background check and licensure exam and completing supervised hours as a Limited Licensed Professional Counselor (LLPC).

Code	Title	Credits
<b>Semester 1</b>		
CED 6005	Professional Counseling: Orientation	3
CED 6015	Diversity, Multicultural Competence, and Social Justice Advocacy for Human Service Professionals	3
CED 6025	Counseling Theories, Philosophies, and Techniques	3
<b>Semester 2</b>		
CED 6055	Testing and Assessment for Counselors	3
EDP 7410	Human Developmental Psychology	4
CED 6045	Professional Counseling Laws and Ethics	3
<b>Semester 3</b>		
EDP 7370	Psychopathology and Diagnosis	3
EER 7640	Fundamentals of Quantitative Research	3
EDP 7190 or EDP 7200	Couples Therapy Systemic Theories and Family Therapy	3
<b>Semester 4</b>		
CED 6075	Trauma: Conceptualization and Treatment Planning	3
CED 6085 or CED 7225	Sexuality Psychosocial Aspects of Disability	3
CED 7305	Clinical Counseling Roles: Consultation, Collaboration, and Coordination	3

<b>Semester 5</b>		
CED 6095	Introduction to Counseling Groups	2
CED 6096	Group Counseling Participation	1
CED 6065	Career Development and Employment Strategies	3
CED 6720	Workshop in Counseling	1
<b>Semester 6</b>		
CED 6105	Individual and Systemic Approaches to Treating Addictions	3
CED 7005	Counseling Skills	3
<b>Semester 7</b>		
CED 7015	Counseling Practicum	4
<b>Semester 8</b>		
CED 7020	Counseling Internship	6
<b>Total Credits</b>		<b>60</b>

## School Counseling (62 credit hours)

The School Counseling concentration prepares students to work in K-12 public or private school settings. This program is monitored and approved by the Michigan Department of Education. Courses in the School Counseling concentration incorporate a developmental approach to delivering school counseling services in culturally diverse settings.

The Michigan School Counseling Association (<http://www.michiganschoolcounselor.org/>) was instrumental in the 1993 adoption of a comprehensive K-12 developmental guidance program by the State Board of Education. This model is stressed in the school counseling curriculum.

Students who complete the school counseling specialization (with or without an existing teaching certificate) may be employed as school counselors and recommended for the School Counselor License (SCL). All applicants for the School Counselor License (SCL) must have received a passing score on the Michigan State Department of Education's Michigan Test for Teacher Certification (MTTC) Guidance Counselor examination.

Code	Title	Credits
<b>Semester 1</b>		
CED 6005	Professional Counseling: Orientation	3
CED 6015	Diversity, Multicultural Competence, and Social Justice Advocacy for Human Service Professionals	3
CED 6025	Counseling Theories, Philosophies, and Techniques	3
<b>Semester 2</b>		
CED 6055	Testing and Assessment for Counselors	3
EDP 7410	Human Developmental Psychology	4
CED 6045	Professional Counseling Laws and Ethics	3
<b>Semester 3</b>		
EDP 7370	Psychopathology and Diagnosis	3
EER 7640	Fundamentals of Quantitative Research	3
CED 6065	Career Development and Employment Strategies	3
<b>Semester 4</b>		
CED 6075	Trauma: Conceptualization and Treatment Planning	3
CED 7105	Introduction to School Counseling, Consulting, and Collaboration	3
CED 6085 or CED 7225	Sexuality Psychosocial Aspects of Disability	3
<b>Semester 5</b>		
CED 6095	Introduction to Counseling Groups	2

CED 6096	Group Counseling Participation	1
CED 7115	Advanced School Counseling	3
CED 7125	School Counseling: Postsecondary Planning and College Counseling	3
<b>Semester 6</b>		
CED 6105	Individual and Systemic Approaches to Treating Addictions	3
CED 7005	Counseling Skills	3
<b>Semester 7</b>		
CED 7015	Counseling Practicum	4
<b>Semester 8</b>		
CED 7020	Counseling Internship	6
<b>Total Credits</b>		<b>62</b>

## Clinical Rehabilitation Counseling (62 credit hours)

The Clinical Rehabilitation Counseling (<http://coe.wayne.edu/tbf/rehab/>) (CRC) concentration prepares students to work in rehabilitation settings, such as the Veterans Administration. Students completing this concentration receive additional training specific to working with clients who have disabilities including medical aspects of disabilities, psychosocial aspects of disabilities, and employment for people with disabilities.

Students who complete the CRC concentration are eligible to apply for licensure as professional counselors (LPC), provided they fulfill state-mandated requirements, which include passing a background check and licensure exam and completing supervised hours as a Limited Licensed Professional Counselor (LLPC). CRC students are also eligible to apply for the Certified Rehabilitation Counselor (<https://www.crccertification.com/>) (CRC) credential.

Code	Title	Credits
<b>Semester 1</b>		
CED 6005	Professional Counseling: Orientation	3
CED 6015	Diversity, Multicultural Competence, and Social Justice Advocacy for Human Service Professionals	3
CED 6025	Counseling Theories, Philosophies, and Techniques	3
<b>Semester 2</b>		
CED 6055	Testing and Assessment for Counselors	3
EDP 7410	Human Developmental Psychology	4
CED 6045	Professional Counseling Laws and Ethics	3
<b>Semester 3</b>		
EDP 7370	Psychopathology and Diagnosis	3
EER 7640	Fundamentals of Quantitative Research	3
CED 6065	Career Development and Employment Strategies	3
<b>Semester 4</b>		
CED 6075	Trauma: Conceptualization and Treatment Planning	3
CED 7205	Foundations of Rehabilitation Counseling	3
CED 7235	Rehabilitation Counseling Professional Roles	3
<b>Semester 5</b>		
CED 6095	Introduction to Counseling Groups	2
CED 6096	Group Counseling Participation	1
CED 7215	Medical Aspects of Disability	3
CED 7225	Psychosocial Aspects of Disability	3
<b>Semester 6</b>		



CED 6105	Individual and Systemic Approaches to Treating Addictions	3
CED 7005	Counseling Skills	3
<b>Semester 7</b>		
CED 7015	Counseling Practicum	4
<b>Semester 8</b>		
CED 7020	Counseling Internship	6
<b>Total Credits</b>		<b>62</b>

## Art Therapy & Clinical Mental Health Counseling (68 credit hours)

Clinical Mental Health Counseling students can choose to complete additional training in Art Therapy (<http://coe.wayne.edu/ted/art-therapy/>). A concentration in Art Therapy prepares counselors to work effectively as professional counselors (LPCs) while utilizing creative and expressive art therapies. These therapies are based on the belief that many people can express themselves through art in ways they are unable to do otherwise.

Art therapy uses the creative process of visual art-making as a way of expressing and working through emotional conflicts and of fostering self-awareness and personal growth. Art therapists work with individuals of all ages and abilities in clinical, educational, rehabilitative and studio settings.

Code	Title	Credits
<b>Semester 1</b>		
CED 6005	Professional Counseling: Orientation	3
CED 6025	Counseling Theories, Philosophies, and Techniques	3
AT 6340	Theory of Art Therapy	3
AT 6320	Art Therapy: Introduction and Ethics	3
<b>Semester 2</b>		
AT 7500	Cultural and Social Diversity in Art Therapy	3
EDP 7410	Human Developmental Psychology	4
CED 6045	Professional Counseling Laws and Ethics	3
<b>Semester 3</b>		
CED 6055	Testing and Assessment for Counselors	3
CED 7305	Clinical Counseling Roles: Consultation, Collaboration, and Coordination	3
CED 6065	Career Development and Employment Strategies	3
<b>Semester 4</b>		
EDP 7370	Psychopathology and Diagnosis	3
AT 7300	Studio Art Therapy	3
AT 7330	Art Therapy with Children and Adolescents: Assessment and Practice	3
<b>Semester 5</b>		
AT 7310	Art Therapy with Groups	3
AT 7340	Art Therapy with Adults and Families: Assessment and Practice	3
<b>Semester 6</b>		
CED 7005	Counseling Skills	3
<b>Semester 7</b>		
CED 7015	Counseling Practicum	4
AT 7380	Art Therapy Practicum	3
AT 7000	Research in Art Therapy	3
<b>Semester 8</b>		
CED 7020	Counseling Internship	2

AT 7890	Art Therapy Internship	2
<b>Semester 9</b>		
CED 7020	Counseling Internship	1
AT 7890	Art Therapy Internship	1
AT 7999	Art Therapy Master's Project and Specialization	3
<b>Total Credits</b>		<b>68</b>

## Combined School Counseling & Clinical Mental Health Counseling (71 credit hours)

Students may pursue a combined concentration that fulfills the requirements for the Clinical Mental Health and School Counseling concentrations. This combined concentration prepares students for licensure as professional (LPC) and school (SCL) counselors, so they can work in a variety of employment settings. Students in the combined concentration must complete an additional 600 internship hours for a total of 1,200 hours.

Code	Title	Credits
<b>Semester 1</b>		
CED 6005	Professional Counseling: Orientation	3
CED 6015	Diversity, Multicultural Competence, and Social Justice Advocacy for Human Service Professionals	3
CED 6025	Counseling Theories, Philosophies, and Techniques	3
<b>Semester 2</b>		
CED 6055	Testing and Assessment for Counselors	3
EDP 7410	Human Developmental Psychology	4
CED 6045	Professional Counseling Laws and Ethics	3
<b>Semester 3</b>		
EDP 7370	Psychopathology and Diagnosis	3
EER 7640	Fundamentals of Quantitative Research	3
EDP 7190	Couples Therapy	3
or EDP 7200	Systemic Theories and Family Therapy	
<b>Semester 4</b>		
CED 6075	Trauma: Conceptualization and Treatment Planning	3
CED 6085	Sexuality	3
or CED 7225	Psychosocial Aspects of Disability	
CED 7105	Introduction to School Counseling, Consulting, and Collaboration	3
<b>Semester 5</b>		
CED 6095	Introduction to Counseling Groups	2
CED 6096	Group Counseling Participation	1
CED 7115	Advanced School Counseling	3
CED 7125	School Counseling: Postsecondary Planning and College Counseling	3
CED 6065	Career Development and Employment Strategies	3
<b>Semester 6</b>		
CED 6105	Individual and Systemic Approaches to Treating Addictions	3
CED 7005	Counseling Skills	3
<b>Semester 7</b>		
CED 7015	Counseling Practicum	4
<b>Semester 8</b>		
CED 7020	Counseling Internship (School)	6
<b>Semester 9</b>		



## Combined School Counseling & Clinical Rehabilitation Counseling (77 credit hours)

Students may pursue a combined concentration that fulfills the requirements for the Clinical Rehabilitation Counseling and School Counseling concentrations. This combined concentration prepares students for licensure as professional (LPC), school (SCL) counselors, and certification as Rehabilitation Counselors (CRC) so they can work in a variety of employment settings. Students in the combined concentration must complete an additional 600 internship hours for a total of 1,200 hours.

Code	Title	Credits
<b>Semester 1</b>		
CED 6005	Professional Counseling: Orientation	3
CED 6015	Diversity, Multicultural Competence, and Social Justice Advocacy for Human Service Professionals	3
CED 6025	Counseling Theories, Philosophies, and Techniques	3
<b>Semester 2</b>		
CED 6055	Testing and Assessment for Counselors	3
EDP 7410	Human Developmental Psychology	4
CED 6045	Professional Counseling Laws and Ethics	3
<b>Semester 3</b>		
EDP 7370	Psychopathology and Diagnosis	3
EER 7640	Fundamentals of Quantitative Research	3
CED 6065	Career Development and Employment Strategies	3
<b>Semester 4</b>		
CED 6075	Trauma: Conceptualization and Treatment Planning	3
CED 7205	Foundations of Rehabilitation Counseling	3
CED 7235	Rehabilitation Counseling Professional Roles	3
<b>Semester 5</b>		
CED 6095	Introduction to Counseling Groups	2
CED 6096	Group Counseling Participation	1
CED 7215	Medical Aspects of Disability	3
CED 7225	Psychosocial Aspects of Disability	3
CED 7105	Introduction to School Counseling, Consulting, and Collaboration	3
<b>Semester 6</b>		
CED 7125	School Counseling: Postsecondary Planning and College Counseling	3
CED 7115	Advanced School Counseling	3
CED 7005	Counseling Skills	3
<b>Semester 7</b>		
CED 6105	Individual and Systemic Approaches to Treating Addictions	3
CED 7015	Counseling Practicum	4
<b>Semester 8</b>		
CED 7020	Counseling Internship (School)	6
<b>Semester 9</b>		

## Counseling (M.Ed.)

### Admission Requirements

Admission to these programs is contingent upon admission to the Graduate School (p. 21). Admission to the counselor education program requires a grade point average of 2.50 or above for the undergraduate course work. Program admission requirements include: a personal interview with an admission committee and a typewritten autobiographical statement reflecting the applicant's respective personal and professional history with a statement of rationale for seeking admittance to the program.

Admission to the specialization in Art Therapy also requires submission of a portfolio of original art work, to be evaluated by art therapy faculty, that demonstrates competence with art materials.

### Program Requirements

The various specializations in counseling require a set of core courses and individual requirements depending on the goals of the student. All specializations require a foundation program of sixty credits under Plans A or C. Additional credits may be required for students completing more than one specialization area. Outlines of recommended minimum programs in the specialization area may be secured from the unit secretary. Cognate course work within and /or outside the College of Education supportive of a major in counselor education is required of all candidates. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

## Counseling Education (Ed.D. and Ph.D.)

*An admissions moratorium is currently in effect for this program.*

### Admission Requirements

In addition to meeting the basic admission requirements of the Graduate School (p. 21) and those of the College (p. 97), a master's degree from an accredited graduate school is required. The master's program must be in counseling, school counseling, rehabilitation counseling, or a closely related field that includes entry-level curricular experiences and demonstrable knowledge and skill competency in each of the eight areas required by CACREP.

- human growth and development
- social and cultural foundations
- helping relationships
- groups
- life and career development
- appraisal
- research and evaluation
- professional orientation

In addition to either a grade point average of 3.5 or above in the master's degree, or a grade point average of 3.35 or above in a master's degree and a grade point average of 3.75 in the Counseling Educational Specialist Certificate program, admission criteria include consideration of academic aptitude for doctoral work, previous professional experience,

demonstrated counseling skills, knowledge of counseling concepts, and potential for professional leadership.

A department-written examination is required. Doctoral program applicants are also required to take the Graduate Record Examination and have the results forwarded to the program area. In addition, a demonstration of counseling skills is required using the Counseling and Testing Center. A single 45-minute session is audio- and/or video-taped and reviewed by the Advanced Admission Committee.

Applicants must make up any deficits or remedial work as listed on their approved application for admission form before beginning advanced doctoral course work. Specifically, those persons who have master's degrees from closely-related fields (psychology, social work, nursing) must complete all academic and clinical prerequisites required before beginning advanced doctoral course work.

## Program Requirements

The doctoral program is individually developed with a major advisor. Within the guidelines of the Graduate School and the college, students build a specialized curriculum. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

All students complete:

1. two doctoral seminars from foundation areas;
2. a concentration in counselor education;
3. at least two doctoral level supervised internships;
4. course work aimed at developing competence in statistics and research methodologies;
5. course work selected by the student, major advisor and cognate advisor which supports an additional area of professional expertise;
6. and electives chosen from the major field or the cognate area.

Additional requirements for the doctoral degrees are explained in greater detail in program materials available from the program area

## Counseling Psychology (M.A.)

Admission to this program is contingent upon admission to the Graduate School (p. 21). A minimum of fifteen credits in psychology or related field approved by admissions committee and a minimum undergraduate point average of 3.0 are prerequisite to admission. A program application, Graduate Record Examination (GRE), three letters of recommendation, undergraduate/graduate transcripts, and a personal interview with the admissions committee are required. Applications are accepted after September 1 with a rolling deadline starting February 15 through March 15. Applicants are encouraged to apply early and will be interviewed by the Admissions Committee until a class of fifteen students is admitted. Students are admitted once each year and begin the program in the summer semester of the year for which they are admitted. It is strongly suggested that applicants reference the Counseling Psychology (<http://coe.wayne.edu/tbf/educational-psychology/counseling->) website to obtain program and scholarship information and a program application. Application for graduate admissions must be made online.

This program is calendar controlled in that all course work must be completed in semester sequences commencing with the Summer term. Students should refer to the program for current plans of work and course requirements (<http://coe.wayne.edu/tbf/educational-psychology/counseling->).

A clinical 500-hour internship/practicum is required for licensure in the State of Michigan and must be conducted in a non-profit setting under

the supervision of a licensed psychologist. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.

## Counseling Psychology (Ph.D.)

The Wayne State University Counseling Psychology (WSU-CP) Ph.D. prepares the scholar-practitioner to advance the practice of psychology and improve mental health recovery and wellness through research and reflective practice. The WSU-CP doctoral program was formally established in 2018.

The WSU-CP doctoral program resides within the Theoretical and Behavioral Foundations division of the College of Education. The training prepares practitioners to make professional judgments that take into consideration best practices derived from research and theory, social, political, and policy contexts, ethical principles, and multicultural awareness. Courses emphasize the broad applications of normal and abnormal development, multicultural and ecological approaches such as family and community. Students may also elect to take courses in couples, family therapy, and/or trauma to augment their clinical training. Training offers a balance of both urban and metropolitan experiences for all students to ensure familiarity with a range of socioeconomic and cultural backgrounds.

The curriculum and practical experiences are designed to ensure professional competency and knowledge integration as it relates to scholarship, clinical practice, and advocacy. Program graduates will be prepared for employment within a variety of settings including academic departments, university counseling centers or clinics, community mental health agencies, hospitals, the non-profit sector, and/or independent practice. The program prepares students to meet the licensing requirements as a psychologist in the State of Michigan.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Applications are accepted after September 1 with a deadline of January 15. Applicants must complete a Counseling Psychology program application form, three letters of recommendation, curriculum vitae/resume, personal statement, transcripts, and online application required by the Graduate School. Applicants will not be considered for admission until all documents have been received and evaluated by the admissions committee. Admissions decisions are generally made by March 15 and applicants have until April 15 to notify of acceptance.

The program considers both direct admission from the baccalaureate degree and those with advanced degrees in psychology or a strongly related field. (If you are applying as a Canadian citizen and may be practicing in Canada, you are required to have a bachelor's degree in psychology to be considered for admission, based on Canadian psychology licensing requirements.) The work of students who had advanced degrees upon entering this program will be evaluated on a case-by-case basis by the directors to meet the required clinical experience and training.

Application policies and procedures are available on the Counseling Psychology program website (<https://education.wayne.edu/counseling-psychology/phd/>). The General Record Exam is not required, but highly recommended. The admission committee uses a holistic review process that does not rely solely on standardized tests. Assessment of the applicant's transcripts, letters of recommendation, writing sample, personal statement and research interests aligned with faculty, and availability of faculty mentorship are used to make admission decisions. Strong applicants will demonstrate academic promise in

scholarship and practice, discipline and commitment to ethics and human rights, tolerance for professional and skill development, as well as an interest in social justice and multiculturalism. Review of applicants is based on combined holistic assessment including: (1) academic excellence; (2) writing skill; (3) alignment of academic, employment, and/or service-related experiences, and faculty research interests; (4) quality of recommendation and references. The number of applicants recommended for admission each year varies and is determined primarily by the availability of faculty advisors for incoming students.

## Curriculum Overview

WSU-CP doctoral students will participate in coursework and training activities that to develop knowledge, skills, and professional competencies in core areas related to the discipline of psychology:

1. Research Methods and Statistics
2. Biological Bases of Behavior
3. Cognitive-Affective Bases of Behavior
4. Social Bases of Behavior
5. Individual Behavior and Human Development
6. History and Systems of Psychology
7. Professional Issues and Ethics in Counseling Psychology
8. Theory and Practice in Psychotherapy
9. Supervision, Outreach and Consultation
10. Intellectual and Personality Assessment
11. Social Justice and Multiculturalism
12. Professional Values and Behaviors

## Program Requirements

The Doctor of Philosophy requires a minimum of 90 credits of coursework beyond the baccalaureate degree, thirty of which must be earned as dissertation credits. All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Education (p. 93). In addition to coursework and clinical training (practicum), students must complete written and oral qualifying exams, dissertation, and a 2000-hour doctoral internship during the final years of study.

The WSU-CP includes the following coursework:

Code	Title	Credits
<b>Elective in Systems</b>		
Students matriculating in the program, either directly from their baccalaureate or advanced degrees, select one or more of the following electives in systems:		
EDP 7190	Couples Therapy	
EDP 7200	Systemic Theories and Family Therapy	
EDP 7220	Psychotherapy with Children and Adolescents	
<b>Required Courses</b>		
CED 6015	Diversity, Multicultural Competence, and Social Justice Advocacy for Human Service Professionals	
CED 9120	Seminar and Internship Supervising Counselors	
EDP 7370	Psychopathology and Diagnosis *	
EDP 7400	Foundations of Social Psychology	
EDP 7420	Introduction to Behavioral Psychology *	
EDP 7430	Foundations in Cognitive, Behavioral, and Affective Therapeutic Methods	
EDP 7520	Professional Ethics and Standards for Psychologists *	

EDP 8319	Pre-practicum in Clinical Procedures (depends on entry point/terminal masters only)
EDP 8320	Practicum in Clinical Procedures I (Two consecutive semesters)
EDP 9000	Doctoral Seminar in Counseling Psychology *
EDP 9319	Advanced Practicum in Clinical Procedures *
EDP 9320	Internship in Clinical Procedures (Doctoral internship; 1cr. per semester, and min. 3 total credits )
PSY 7120	Biological Basis of Behavior
PSY 7440	Cognitive Development
	or PSY 8620 Social Cognition

The elective in systems and required courses should total a minimum 45 of 45 credits.

### College Required Courses

Select one of the following:

EER 8992	Research and Experimental Design
PSY 7470	Interdisciplinary Research Methods in Social, Cognitive and Developmental Psychology

Select one of the following statistics sequences:

EER 8800 & EER 8820	Variance and Covariance Analysis and Multivariate Analysis
PSY 7150 & PSY 8150	Quantitative Methods in Psychology I and Multivariate Analysis in Psychology
SOC 6280 & SOC 7290	Social Statistics and Advanced Social Statistics

Select any of the following with advisor/director approval:

EER 7870	Qualitative Research I: Introduction
EER 7910	Qualitative Methods for Diversity and Inclusion
EER 8520	Qualitative Research II: Design and Data Collection
EER 8840	Structural Equation Modeling

The college required courses in statistics and methods and research 15 should total a minimum of 15 credits.

### Dissertation Courses

ED 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
ED 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
ED 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
ED 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5

**Total Credits** 90

\* Students matriculating in the program, either directly from their baccalaureate or advanced degrees, must complete this course.

## Plan of Work

The Plan of Work reflects a systematic and organized series of courses, seminars, field experiences, etc., designed to assist students in organization and planning the course of their matriculation through the doctoral program.

Following formal acceptance into the program, students are provided a preliminary Plan of Work for their first academic year and assigned a research advisor. The Plan of Work must be approved by the program director and the major advisor along with the College of Education

graduate director in the semester the student is completing the first 18 credits.

The Plan of Work must conform to the Policy and Procedures stated in this document. Plans of Work can be revised due to changes in course scheduling changes, or personal goals. However, students must discuss any potential changes with their major advisor and obtain permission from the program directors before a substitution is made. A change in the Plan of Work can be found on the College of Education website under the Students Tab (<https://education.wayne.edu/students/>).

### Residence

The program requires a minimum of three full-time academic years of graduate study (or the equivalent) plus internship prior to receiving the doctoral degree; at least two of the three academic training years (or the equivalent) must be at the program from which the doctoral degree is granted; and at least one year must be in full-time residence at the program.

### Examinations

The qualifying examination is a two-part exam in the College of Education. Part I is a written examination covering the student's major area the discipline of Counseling Psychology. Part II is an oral examination demonstrating profession – wide competencies in clinical assessment and treatment. Qualifying exams are typically taken following the completion of the majority of coursework.

### Training, Teaching, and Research

Doctoral students are encourage to participate in a research or training assignment each academic year they are in residence. This is required of all full-time students, irrespective of whether the training assignment includes a stipend. The student's area committee is responsible for seeing that this requirement is met each year. The training assignment involves appropriate teaching, research (other than dissertation research) or professional activities.

## Educational Psychology (Ph.D.)

*An admissions moratorium is currently in effect for this program.*

### Admission Requirements

Applicants should refer to the admission requirements for doctoral degrees (p. 130) in the College of Education. The Educational Psychology Doctor of Philosophy Program has a concentration in Learning and Instruction Sciences. Successful applicants seeking admission to the Learning and Instruction Sciences concentration should have a master's degree in Educational Psychology, or a closely related field. In addition to uploading materials to an online Graduate Admission application, materials must be submitted to the chairperson of the Learning and Instruction Sciences concentration.

### Learning and Instruction Sciences

The concentration in Learning and Instruction Sciences is a full-time program adhering to the scientist-practitioner model and prepares students in the systematic study of human learning and educational instruction. This concentration integrates interdisciplinary training in instructional technology and educational evaluation and research to prepare graduates to design, implement, and evaluate learning in various contexts. The Learning and Instruction Sciences concentration prepares students for research, service, and administrative careers, teaching in diverse educational settings, and consultation in the private sector. In addition to the departmental requirements for the doctoral degree, students take courses in ethics and professional standards, advanced theories of learning and development, instructional technology, and

program evaluation. Students may also select a number of courses in the psychology department.

## Program Requirements

Research course requirements include a minimum of fifteen credits in research and evaluation (EER). The remaining plan of work is arranged with an advisor depending on master's level training and future goals, and includes 30 dissertation credits, which is a requirement set by the university.

All doctoral students will complete a comprehensive examination at the end of coursework and a final report and defense after completion of the dissertation. All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees. All Plans of Work are developed in consultation with the student's assigned advisor.

## School and Community Psychology (M.A.)

*An admissions moratorium is in effect for this program.*

Admission to this program is contingent upon admission to the Graduate School (p. 21). A minimum of fifteen credits in psychology or educational psychology is prerequisite to admission. A program area application, the verbal and quantitative sections of the Graduate Record Examination (GRE), three letters of recommendation and a personal interview are required for admission consideration. Applications are accepted between September 1 and February 1. Students are admitted once each year and must begin the program in the fall semester of the year for which they are admitted. It is a cohort program so students are given a sequence in which to take classes. In addition to uploading transcripts to an online Graduate Admission application, there are additional items to be submitted directly to the program. Contact the program secretary for guidance in applying. As part of the completion of the master's program, students move into a graduate certificate program that culminates at the end of year 3.

Course work requirements include:

Code	Title	Credits
EDP 7220	Psychotherapy with Children and Adolescents	4
EDP 7260	School-Based Consultation and Intervention	3
EDP 7300	Ethics, Standards, and the Practice of Psychology	4
EDP 7400	Foundations of Social Psychology	3
EDP 7410	Human Developmental Psychology	3-4
EDP 7420	Introduction to Behavioral Psychology	4
EDP 7430	Foundations in Cognitive, Behavioral, and Affective Therapeutic Methods	4
EDP 7561	Assessment of Cognitive Functioning	4
EDP 7562	Assessment of Personality and Social-emotional Functioning	4
EDP 7563	Assessment of Academic Achievement	3
EDP 7564	Assessment and Intervention for Academic Learning Difficulties	4
EDP 7610	Child and Adolescent Psychopathology	3
EDP 8320	Practicum in Clinical Procedures I	1-8
EDP 8330	Practicum/Field Experience in School Psychology	1-8
EDP 8360	Internship in School Psychology	1-8
EER 7640	Fundamentals of Quantitative Research	3

All course work must be completed in accordance with the academic procedures of the College of Education (p. 93) and the Graduate School's (p. 33) regulations governing graduate scholarship and degrees.



# College of Engineering

Dean: Ali Abolmaali

Graduate education is important to the engineer interested in keeping pace with rapid growth in science and technology and in preparing for changes in job responsibilities. In the midst of greater Detroit's large community of professional engineers, Wayne State University's College of Engineering has an important mission to provide opportunities for study in contemporary areas and the latest developments in technology.

The College of Engineering is a leading research institution in Michigan and the nation. This is reflected in its instructional programs, which are supported both by its own research and by that of other institutions, and in the suitability of its industrial/educational environment for advanced study. Engineering graduate students are drawn both from the upper ranks of graduating seniors in various disciplines and from established engineers interested in pursuing advanced degrees. Criteria for admission are restrictive, and a high standard of performance is expected of successful candidates. In short, the challenges are great, but the potential rewards are equally promising.

The College of Engineering offers the Master of Science and Doctor of Philosophy degrees in biomedical, chemical, civil, computer science, electrical, industrial, mechanical, and materials science and engineering. In addition, a Master of Science may be earned in alternative energy technology, electric-drive vehicle engineering, engineering management, engineering technology, and manufacturing engineering. Graduate certificate programs are also available in a number of areas for additional specialization after completion of an undergraduate or graduate engineering degree. These programs are described generally below and specifically in the subsequent, departmental sections.

The College provides support for the various instructional and research laboratories in the construction, modification, repair, calibration and installation of experimental equipment. In addition, the College offers sophisticated assistance in the design of electronic and instrumentation equipment and devices. Qualified students use these facilities under the supervision of trained professionals.

Excellent research programs are available in this college; graduate students can write a thesis or dissertation based on their participation in these programs to fulfill part of their degree requirements.

Many graduate students pursue their studies in the College while working full or part-time in local industry, where they have available to them unique facilities not found within the University. Students in such situations are encouraged to pursue their graduate research at their places of employment, under the joint supervision of the faculty advisor and a company representative. Such research may be applicable as credit earned for directed study courses, master's theses, or doctoral dissertations. However, after completion of a Bachelor of Science degree and one or more years of on-the-job experience, additional training at the graduate level is often desirable without participation in a research program, and the College provides an optional master's degree program without a thesis research requirement.

## Research Centers

Opportunities exist at both the graduate and advanced undergraduate levels for students to participate in the programs of the research centers.

### Bioengineering Center

The Bioengineering Center is an interdisciplinary group engaged in biomedical research, utilizing the principles of mechanical, chemical, electrical, and computer engineering. Faculty members from the College of Engineering collaborate with colleagues from the Wayne State Medical School in joint efforts to solve both basic and clinical problems. The principal area of research in the Center is injury biomechanics, with major areas of research include trauma biomechanics, the mechanical basis for low back pain, human locomotion studies, and orthopedic biomechanics. Other activities include the development of advanced anthropometric test dummies and impact studies using horizontal accelerator test sleds.

### Center for Automotive Research

The Center for Automotive Research coordinates a variety of programs in different automotive areas, such as combustion engines, dynamics, acoustics, vibrations, and electronic controls. The engine research deals with the basic processes of thermodynamics, heat transfer, mass transfer and chemical kinetics which affect the performance, fuel economy, startability and emissions of different types of engines. A fully-instrumented cold room is used for some of these studies. Research is also conducted on diesel engine combustion and alternate fuels. The research consists of extensive theoretical analysis, supported by experimental investigations. The Center combines expertise from the Departments of Mechanical, Chemical, and Electrical and Computer Engineering.

## Facilities of the College

Wayne State University has been identified as a PACE Partner, a group of fifty universities world-wide who have been selected by the PACE (Partnership for the Advancement of Collaborative Engineering Education) consortium to offer educational programs that are centered around the concepts of product life cycle management and the design, analysis, and planning processes in the artifice of virtual worlds with relevance to real world situations. PACE provides Wayne State students with access to the same state-of-the-art computer software and tools that are used in industry. In addition, opportunities for collaborative project development exist within the College, with other PACE institutions in Michigan, and with universities across the globe. This provides College of Engineering students with an advantage when entering the workforce or when transitioning to new roles following their graduate education.

Stimulating productive research and teaching methods are the goals of the Engineering Computer Center. These goals are met by providing and supporting the latest technologies in computer hardware, software, and networking including those associated with PACE. All curricula are designed to take advantage of these advancements and students feel the impact of these tools in their coursework. The latest in simulation, analysis, and design software are provided for students to use and master.

College of Engineering facilities include five separate buildings with over 330,000 square feet of classroom, office and laboratory space. The primary home of the College of Engineering is a three-story office building directly attached to a laboratory wing and connected to the Engineering Development Center. This has created a stimulating and productive research and teaching facility for the College. Among these facilities are multimedia classrooms, a comprehensive computer center, electronics and machine shops, dedicated teaching laboratories, and sophisticated research laboratories. The four multimedia classrooms support innovative course delivery techniques, including interactive distance learning with classrooms at a variety of sites within WSU, at other colleges and universities, and at industrial locations. The computer facilities include dedicated computer graphics, design, and personal computing hardware and software. The Marvin I. Danto Engineering Development Center, which opened in 2009, provides 80,000 square feet of space dedicated to advanced research and student collaborative projects. This includes the PACE Teaming Center, a classroom that is designed to support student team-based collaboration. The Division of Engineering Technology is housed in a separate building of approximately 24,000 square feet, located at 4855 Fourth Street. This recently remodeled facility houses labs and classrooms, including a teaching machine shop.

## Research Facilities

The College oversees a wide range of undergraduate, graduate, and faculty research laboratories and excellent support facilities, housed in its five-building complex. The Bioengineering Center operates in close collaboration with Wayne's Medical School, employing unique equipment, in particular its own massive horizontal accelerator, to conduct impact studies emphasizing biomechanics. The College's Manufacturing Engineering Building (MEB) is home to the Department of Industrial and Systems Engineering. The most striking feature of MEB is its multi-story High Bay Lab, Wayne's largest research space, capable of accommodating full-scale production machinery. The MEB includes eighteen other labs currently in use by faculty from several departments. The Marvin I. Danto Engineering Development Center, which opened in 2009, provides significant new research space that focuses on interdisciplinary research and collaboration. EDC laboratories are focused on the urban infrastructure, alternative energy and advanced propulsion systems, nanotechnology, and smart sensors. The main Engineering Building, one of the largest structures on campus, houses specialized labs of many types. The Center for Automotive Research conducts interdisciplinary investigations of diesel and gasoline engines in a series of specialized test cells, including the engineering cold room a fully-instrumented lab capable of reaching a temperature of minus-40 C. The College's anechoic chamber is a walk-in scale facility dedicated to advanced research on vibrations and noise, particularly in automobiles. Other labs house research on diesel and gasoline combustion, structures and earthquake systems (utilizing the two-story structures lab, capable of testing multi-ton building components), soil mechanics, pollution and remediation models, polymers and composite materials, environmental kinetics, electron microscopy, catalysis, surface science, biomedical sciences, high-performance computing, neural networks, communication and information systems, materials/ fluids/metallurgy testing, solid-state electronics, robotics and computer-aided manufacturing, microprocessors, optical computing, and molecular beams and laser light scattering. Of particular note is the nano-fabrication (n-Fab) Laboratory, along with a Class 10 clean room, built with a \$7.0 million equipment grant from Delphi Automotive and a \$3.0 million investment by Wayne State University for infrastructure development. This investment provides the College of Engineering with one of the nation's leading nano-fabrication research laboratories. The College's research equipment is maintained, modified, and, in many cases, constructed by its in-house electronics shop and machine shop.

## Accreditation

All of the undergraduate curricula of the Division of Engineering leading to a Bachelor of Science degree in engineering are accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET) (415 North Charles Street, Baltimore, MD 21201, 410-347-7700).

Electrical/Electronic Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Electrical/Electronic(s) Engineering Technology Program Criteria.

Mechanical Engineering Technology program is accredited by the Engineering Technology Accreditation Commission of ABET, <https://www.abet.org>, under the General Criteria and the Mechanical Engineering Technology Program Criteria.

Details of these programs are provided in the Undergraduate Bulletin. Curriculum accreditation is based upon careful periodic appraisal of the faculty, educational program, and facilities of the College. This approval provides assurance of an up-to-date, high quality education pertinent to the engineering profession. Such accreditation is recognized by other universities, prospective employers, and state professional licensing agencies.

# Academic Regulations for the College of Engineering

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations (p. 24) section of this bulletin. The following additions and amendments pertain to the College of Engineering.

## Matriculation

After receiving credentials from the Office of Admissions, and before registration, a student should contact the graduate advisor in his/her major department (see the following list) for details of program planning and to discuss requirements and course work.

## Academic Scholarship

A graduate degree is evidence of scholarly achievement, academic excellence, critical and creative abilities, the capacity to apply and interpret what has been learned, and proper use of the work of others. Continuance in graduate status is contingent on satisfactory scholarship with grades of 'B' or better. Every effort is made to assist the student whose work suffers as a result of conditions beyond his/ her control.

Graduate students are required to earn a g.p.a. of 3.0 ('B' average) or better in all graduate-level subjects taken at WSU in order to satisfy degree requirements. Students whose cumulative g.p.a. falls below 3.0 are placed on probation, and the performance of these students is closely monitored by the departmental graduate committee. Students who fail to remediate this probationary status within eight credits after being placed on probation are subject to termination from the graduate program.

Any grade lower than 'B-minus' in a core course MUST be repeated. (The Industrial and Systems Engineering Department requires students to repeat core courses in which they have received a grade of 'B-minus' or lower. The Biomedical Engineering Department will not count any course with a grade lower than a 'B-minus' towards degree requirements.) No more than two courses may be repeated in a graduate program (the Electrical and Computer Engineering and the Mechanical Engineering Departments permit the repetition of only one course), and a student must have the appropriate approvals BEFORE the repeat registration takes place. These two repeats may consist of a second attempt of two separate courses or two repeat attempts of a single course. Per University policy, any course in which a mark appears on the student's transcript (including W) counts as an attempt to earn credit in that course. These attempts are therefore factored into the assessment of allowed repeats unless an exception is granted during the semester of the withdrawal (see below). 'F' grades earned while in the College of Engineering may be the basis for immediate termination. Consult each department for additional requirements.

All course work must be completed in accordance with the academic procedures of the College of Engineering and the Graduate School (p. 24) governing graduate scholarship and degrees. University rules require an overall g.p.a. of 3.0 or higher for graduation, in all graduate work completed at Wayne State.

## Plan of Work

Students who have been admitted into a graduate program in the College of Engineering are required to meet with their graduate program advisor before registering for their first term, and then to enroll in those courses mutually decided upon. During the first semester of their graduate program, in consultation with their graduate advisor, all graduate

students must develop a Plan of Work that determines their anticipated schedule for each term.

Students who fail to meet with their graduate advisor before registration or who do not have an approved Plan of Work may be administratively withdrawn from their classes if, in the opinion of the graduate program advisor, they are not taking classes appropriate to their program.

If a student has been admitted to one graduate program and decides not to pursue that program, the student MUST obtain admission to another graduate program, or he/she must withdraw from the University. To obtain admission into another program, the student must meet all the admission requirements for that program and must provide the required admission documents. Approval of the transfer of program by the original admitting program is required. International students on a student visa must also amend their I-20 form at the University Office of International Students and Scholars to reflect the change in program.

## Directed Study

Independent study may be authorized and applied to completion of degree requirements provided the area of interest is an integral part of the student's graduate program and is not covered by scheduled courses. Students who elect a directed study are required to submit a Directed Study Authorization Form, which includes a description of the proposed directed study, with the necessary signatures, prior to registration.

## Withdrawal from Courses

Engineering students are expected to assess early in the semester if they have appropriate time and background to successfully complete a course. Therefore, following University policy, all courses for which a grade or mark (including W) appears on the transcript will count as an attempt at a course. Students may drop a course within the first two weeks of the semester without a notation appearing on the transcript. Starting with the fifth week of the semester, a withdrawal will be noted on a student's transcript. If a student feels that extenuating circumstances beyond his or her control justify the withdrawal and support its not being counted as an attempt at the course, a petition must be submitted for consideration to the Associate Dean for Academic Affairs during the semester in which the course is taken. If the petition is approved, the withdrawal mark will remain on the transcript but a notation will be made in the student's advising record to not count it as an attempt for assessment of allowed repeats.

## Cross-Registration Opportunities

Students are encouraged to consider incorporating into their course of study up to two courses elected in any of three exchange arrangements: the Michigan Intercollegiate Graduate Studies Program (MIGS) (p. 21), the University of Windsor – WSU, Exchange Program Agreement (p. 21)), and Dual Enrollment with the University of Michigan (p. 21). The latter enrollment may be utilized at both the Ann Arbor and Dearborn campuses. Consult the graduate advisor and the Dean's Office for information and application forms applicable to these programs.

The Master of Science is offered in alternative energy technology, biomedical, chemical, civil, computer, and electrical engineering; engineering management, engineering technology; industrial, manufacturing, and mechanical engineering; and materials science and engineering.

## Admission Requirements

Admission to these programs is contingent upon admission to the Graduate School (p. 21). Applicants to the engineering master's degree programs must also satisfy the following criteria.

In addition to the minimum requirement for admission of an overall grade point average of 2.8 from an institution accredited by the Accreditation Board for Engineering and Technology (ABET), a minimum grade point average of 2.8 in all junior and senior year (upper division) courses is required. Applicants from abroad will be judged on the basis of their academic record and on the credentials of the school from which they graduated. Individual departments and interdisciplinary programs may require a higher minimum upper division or cumulative g.p.a.; please refer to the departmental sections of the Graduate Bulletin. Regular admission may also be granted to applicants with undergraduate degrees from regionally (non-ABET) accredited institutions in engineering, physics, chemistry, mathematics and computer science who meet the equivalent of the above minimum standards. Additional course work will generally be required of such applicants.

## Degree Requirements

The College of Engineering's minimum requirement for the master's degree is thirty credits. Some programs require more than this minimum. Master of Science degrees are offered under the following degree plans approved by the College:

**Plan A:** A minimum of twenty-four to twenty-six credits in course work, a minimum of six credits of thesis, and a seminar or an oral presentation on the thesis research.

**Plan B:** A minimum of thirty to forty-two credits, including a four to six credit project. (Engineering Management and Engineering Technology ONLY.)

**Plan C:** A minimum of thirty to forty credits in course work. A thesis is not required.

## Major Credits

Credits earned in the student's major field are designated as major credits. Of the minimum of thirty credits required for the master's degree, at least one-half of the course work, exclusive of thesis credit, must be in the major field. At least six credits in the major must be in upper level graduate courses, as designated by the graduate program.

## Thesis Degree Plan

Students who elect the thesis degree plan (Plan A) are required to file a Thesis Outline Approval Form for approval by the advisor and the program's Graduate Officer before writing the thesis. Final recommendation of approval for the thesis requires an oral defense of the thesis material in the presence of a departmental faculty committee of at least three persons, including the advisor and one faculty member from outside the department.

## Transfer Credits

Every Wayne State student pursuing the M.S. degree must complete at least twenty-four credits in residence. As a privilege, a student may file a Petition for Transfer of Graduate Credit, provided that the credits were earned in residence at another accredited graduate school, are certified as graduate credit with grades of 'B' or better on an official transcript, and are certified by the advisor to be acceptable in the student's degree program. Courses transferred may NOT have been used as applicable credit toward any other degree. In order to transfer grades from another institution, that institution has to be listed on the student's WSU Admissions Application, or specifically mentioned in correspondence to the College prior to matriculation. Special documentation is necessary to transfer credits earned outside of North America. A student whose Petition to transfer credits is denied may still receive credit by examination.

All transcripts supporting the transfer of credits must be for credits earned prior to the student's first semester at WSU. While enrolled in a degree program in the College of Engineering, graduate-level courses taken at another institution may not be applicable to the College of Engineering degree without approval prior to registration for any such courses. A Transfer of Credit request should not be submitted before the completion of eight credits in residence at Wayne State. All credits transferred must conform to the six-year time limitation for completion of requirements.

Since twenty-four credits of any M.S. program must be earned at WSU, the number of transfer credits from a related, uncompleted graduate program at another institution are limited to eight credits for a thirty credit M.S. program and twelve credits for a thirty-six credit M.S. program. Exceptions to this limit are made only for identified collaborative programs with partner universities.

The Doctor of Philosophy (Ph.D.) degree is offered by the College of Engineering in the following major areas: biomedical engineering, chemical engineering, civil engineering, computer engineering, computer science, electrical engineering, industrial engineering, materials science and engineering, and mechanical engineering.

## Admission Requirements

Admission to the doctoral programs of the College is contingent upon admission to the Graduate School (p. 21). For admission into an engineering doctoral program, the student's overall grade point average is expected to be 3.2 or better, with a 3.5 in the last two years as an undergraduate student if being admitted directly from a bachelor's program. Students who do not satisfy these minimum standards may not be considered for admission to the program until they have completed a master's degree and have earned a grade point average in courses taken for graduate credit that is not less than 3.5. Individual departments may have higher admission requirements.

Generally, students applying for admission to the doctoral program should have first achieved an M.S. degree. Students completing their M.S. degree programs who wish to enter the doctoral program must have a minimum grade point average of 3.5 at the graduate level.

## Degree Requirements

A minimum of ninety credits beyond the bachelor's degree is required for the doctoral program, including thirty credits for the dissertation. The thirty credit dissertation registration requirement is fulfilled by registering for the courses 9991, 9992, 9993, and 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively) offered under various subject area codes, in consecutive academic year semesters. For specific course requirements, students should consult the departmental sections of this bulletin, which follow.

There are no general foreign language requirements for the doctoral degree. Specific requirements can be made by the Ph.D. advisory committee and are designed to suit individual Ph.D. applicants.

If the student fails to meet the doctoral requirements, he/she may transfer appropriate credits toward the Master of Science degree program in the discipline in which credits were accrued.

# Biomedical Engineering

Office: 818 W. Hancock; 313-577-1861

Chairperson: Cynthia Bir

Associate Chairperson: Zhifeng Kou (COE)

<http://engineering.wayne.edu/bme/>

The field of biomedical engineering applies engineering science and design to the solution of problems related to human physiology and pathophysiology. Working at the interface of engineering and medicine, biomedical engineers work to prevent injury, diagnose disease, and treat illnesses or injuries that occur. Built on a strong research foundation that stretches back more than eighty years, the biomedical engineering program at Wayne State provides coursework and research opportunities in a broad range of areas in biomechanics, tissue engineering and biomaterials, biomedical imaging, bioinstrumentation, and computational biology.

- Biomedical Engineering (M.S.) (p. 136)
- Biomedical Engineering (Ph.D.) (p. 137)
- Biomedical Imaging (dual-title program) (p. 138)
- Injury Biomechanics (Bridge Graduate Certificate) (p. 138)

## Biomedical Engineering (M.S.)

Program specialization in this master's degree may be undertaken in these areas: biomaterials and tissue engineering, biomechanics of injury, biomedical imaging, biomedical instrumentation, computational and systems biology, and interdisciplinary. These specializations are available to both part-time and full-time students, in either research or non-research degree programs.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, the minimum requirements for admission into the M.S. Program in Biomedical Engineering are:

1. Official transcripts from an accredited institution showing completion of an engineering baccalaureate degree. Students with a baccalaureate degree from a non-engineering discipline will be considered for admission to the program if they have the prerequisite coursework in Calculus (1, 2, and Differential Equations) and Physics (1 and 2). Students without subsequent mathematical application coursework (e.g. life science) must have passed these courses with a grade of 'B' or better.
2. A Grade Point Average (GPA) of 3.0 or higher on a 4.0 scale will be considered for Regular Admission and GPA between 2.8 and 3.0 will be considered for Qualified Admission.
3. International applicants are required to submit a WES Evaluation (<http://wayne.edu/admissions/graduate/international/>).

## Requirements – Traditional Program

This Master of Science degree in Biomedical Engineering is offered under the following options:

**Plan A:** minimum of thirty credits in course work including an eight-credit thesis.

**Plan C:** minimum of thirty credits in coursework.

## Core Requirements

For either plan, students must complete the following:

Code	Title	Credits
BME 5010	Quantitative Physiology	4
BME 5020	Computer and Mathematical Applications in Biomedical Engineering	4
BME 8070	Seminar in Biomedical Engineering	1

## Thesis Degree Plan (Plan A)

Code	Title	Credits
13 credits of general courses (at least 6 credits in BME)		
Minimum of 6 credits at the 7000-level or above (with at least 3 credits at 7000 level or above in BME) *		
Maximum of 4 credits in BME 5990 or BME 7990 (Directed study)		
8 credits of BME 8999 - Master's Thesis Research		
Maximum of 6 credits in BME 6991 (Internship)		
The total credits for Directed Study/Internship combined cannot exceed 8 credits and individual maximums must be followed.		

## Non-Thesis Degree Plan (Plan C)

Code	Title	Credits
21 credits of general courses (at least 12 credits in BME)		
Minimum of 6 credits at the 7000-level or above (with at least 3 credits at 7000-level or above in BME) *		
Maximum of 4 credits in BME 5990 or BME 7990 (Directed Study)		
Maximum of 6 credits in BME 6991 (Internship)		
Maximum of 6 credits of non-BME Graduate-level Engineering or Medical School courses		
The total credits for Directed Study/Internship combined cannot exceed 8 credits and individual maximums must be followed.		

\* BME 7990, BME 8070 and BME 8999 credits cannot be counted towards the minimum number of 7000-level credits in either the thesis or non-thesis program.

Students enrolled in the master's degree program are required to file a Plan of Work with the Graduate Program Director of the program by the time eight graduate credits have been earned. Following this, the applicant will petition his/her advisor to advance his/her rank to 'candidate.' Candidate status must be authorized by the time ten graduate credits have been earned, or else subsequent registration will be denied.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). Courses to be applied to the degree requirements must be completed with a grade of B minus or higher. A maximum of 6 credits may be taken from Engineering or Medical School graduate-level courses with prior approval from the department.

## Requirements – Online Program

The online Master of Science degree in Biomedical Engineering is offered with a concentration in Injury Biomechanics. All classes taken for the Online program must be online. Those enrolled in the program will take a core program in physiology and impact biomechanics, with additional electives to broaden the educational program. The program must be completed under Master's Degree Plan C, and it requires a minimum of thirty credits in course work.

## Core Requirements

For either plan, students must complete the following:



Code	Title	Credits
BME 5010	Quantitative Physiology	4
BME 5020	Computer and Mathematical Applications in Biomedical Engineering	4
BME 8070	Seminar in Biomedical Engineering	1

## Non-Thesis Degree Plan (Plan C)

Code	Title	Credits
21 credits of general courses (at least 12 credits in BME)		
Minimum of 6 credits at the 7000-level or above (with at least 3 credits at 7000-level or above in BME)		
Maximum of 4 credits in BME 5990 or 7990(Directed Study) *		
Maximum of 6 credits in BME 6991 (Internship) *		
Maximum of 6 credits of Non-BME Graduate level Engineering or Medical School courses		

\* Directed Study/Internship combined cannot exceed 8 credits.

Students enrolled in the master's degree program are required to file a Plan of Work with the Graduate Program Director of the program by the time eight graduate credits have been earned. Following this, the applicant will petition his/her advisor to advance his/her rank to 'candidate.' Candidate status must be authorized by the time ten graduate credits have been earned, or else subsequent registration will be denied.

All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). Courses to be applied to the degree requirements must be completed with a grade of B minus or higher. A maximum of 6 credits may be taken from Engineering or Medical School graduate-level courses with prior approval from the department.

## Biomedical Engineering (Ph.D.)

Program specialization in this Ph.D. degree may be undertaken in these areas: biomaterials and tissue engineering, biomechanics of injury, biomedical imaging, biomedical instrumentation, computational and systems biology, and interdisciplinary. These specializations are available to both part-time and full-time students.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, the minimum requirements for admission into the Doctoral Program in Biomedical Engineering are:

1. A student seeking admission to the doctoral program must have a Bachelor's or Master's degree in Biomedical Engineering, or other closely related fields from an accredited institution.
2. A GPA of at least 3.5/4.0 in the applicant's Bachelor's degree or a GPA of at least 3.3/4.0 in the applicant's Master's degree is required.
3. All applicants must submit Graduate Record Examination (GRE) scores.
4. Three letters of recommendation.
5. Curriculum Vitae
6. An approved faculty member who agrees to be the student's Ph.D. advisor. The student must contact the faculty member with whom they want to work and obtain this approval before their application is considered for admission.
7. A statement of research interests and goals.

8. For admission and full funding consideration, please have your application completed by March 1st. Most decisions will be released by April 1st.
9. Current master's students in the WSU BME program must have:
  - a. At least 12 earned credits in the BME courses
  - b. A GPA of at least 3.3/4.0 in the BME courses
  - c. An approved faculty member who agrees to be the student's Ph.D. advisor

## Overall Requirements

Code	Title	Credits
Completion of a minimum of ninety credits beyond the baccalaureate degree is required for the Ph.D. program.		
Minimum of 30 credits at the 7000-level or above (may include BME 7010, BME 7990, BME 8070 and BME 8080).		
Maximum 16 credits from BME 7990 and BME 8999 are applicable to the degree.		
At least 30 credits of coursework, outside of dissertation direction, must be completed at Wayne State.		

## Credit Requirements

Code	Title	Credits
<b>Core Courses (17-18 credits)</b>		
BME 5010	Quantitative Physiology	4
BME 5020	Computer and Mathematical Applications in Biomedical Engineering	4
BIO 5040	Biometry	3-4
or FPH 7015	Biostatistics I	
or BIO 7045	Biometry	
BME 8070	Seminar in Biomedical Engineering	1
BME 8080	BME PhD Qualifying Exam	1
<b>Elective Courses (42-43 credits)</b>		
Minimum of 12 credits of lecture credits in the Biomedical Engineering program excluding the core courses, and the non-lecture courses (BME 7990 and BME 8999)		
BME 9990-Pre-Doctoral Candidacy Research credits do NOT count towards the degree		
<b>Dissertation Courses (30 credits)</b>		
Eligible to be taken after Ph.D. candidacy status is approved		
BME 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
BME 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
BME 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
BME 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5

## General Requirements

An approved Plan of Work should be filed with the Office for Graduate Studies in the first year of the doctoral studies. The student must have filed the Plan of Work before being recommended for candidacy status. Courses to be applied to the degree requirements must be completed with a grade of B minus or higher.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

**Examinations:** All Ph.D. students must pass the examinations outlined below. After successful completion of the written qualifying examination, a student may be admitted to the status of the doctoral candidate.

**Written Qualifying Examination:** All Ph.D. students are required to pass the written qualifying examination (Ph.D. Qualifying Exam (PQE)) before completion of forty-eight credits after their baccalaureate degree. Each student has two chances to pass the examination; if the exam is not passed by the second attempt, the student will be dismissed from the program (the option of obtaining a terminal master's degree will apply). The examination is offered once a year during the Winter semester (students must register for BME 8080 to write the PQE).

**Dissertation Prospectus Defense (Oral Qualifying Examination):** This examination shall be a presentation of the student's proposal for dissertation research, and will be administered by the student's Doctoral Dissertation Committee. This Oral Examination MUST be satisfactorily completed AT LEAST twelve months prior to the Dissertation Defense.

**Dissertation** requirements are satisfied by the successful completion of thirty credits of dissertation research. The thirty-credit dissertation registration requirement is fulfilled by registering for the courses BME 9991, BME 9992, BME 9993, and BME 9994(Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. All Ph.D. students must pass the written qualifying examination and apply for doctoral candidacy before the election of dissertation credits. All Ph.D. students must register for dissertation credits or doctoral candidacy maintenance status (BME 9995) for any semester in which they utilize campus facilities or consult with faculty, even though they may not be enrolled in a formal lecture course.

The final dissertation must be submitted two weeks prior to the defense to the Dissertation Committee and Graduate Program Director. The advisor needs to submit the plagiarism check to the Graduate Program Director two weeks prior.

The dissertation defense will be publicized by public notice to the academic community one week prior. At this session, the candidate presents his/her doctoral research for final approval by the Doctoral Dissertation Committee.

A minimum of one first-author peer-reviewed journal publication is required before defending the Doctoral Dissertation.

For additional information, students should consult the Graduate School's regulations (p. ) governing doctoral study.

## Biomedical Imaging (Ph.D. Dual-Title)

The objective of this program is to prepare students who are currently enrolled in any biomedical related Ph.D. program or in an M.D./ Ph.D. program to become strong imaging researchers. With an excellent imaging background, they have the potential to obtain positions in either industry or academia and tackle problems in engineering and science with new insights and new equipment.

Biomedical Engineering Ph.D. students by the end of the first year of their program may submit a written request to the Biomedical Engineering Graduate Program Director to add the Biomedical Imaging dual-title program to their plan of study.

**Core Courses (16-18 credits):** Students should select 16 to 18 credits (5 or 6 courses) from the course list (please see the program director for an

updated course list). Note that these courses can be counted as part of the Ph.D. requirements.

**Seminar Courses (0-1 credits):** Doctoral seminar series related to imaging can be taken by the student and counted toward 1 credit for the dual title program.

**Special Laboratory Rotation (2-3 credits):** The student will be expected to gain at least one semester's experience in an imaging laboratory, different from their advisor's laboratory, to broaden their imaging experience.

## Injury Biomechanics (Bridge Graduate Certificate)

This Bridge Graduate Certificate program aims to provide specialized skills and training engineers will need to address impact biomechanics and motor vehicle trauma in the automotive and defense industries as well as blast-induced injury biomechanics and countermeasures. Those enrolled in the program will take a core program in physiology and impact biomechanics, with additional electives to broaden the educational program.

As a Bridge Graduate Certificate, students who complete this program have the option to continue into the M.S. program in Biomedical Engineering. Credits earned as part of the Bridge Graduate Certificate in Injury Biomechanics can be applied towards the M.S. degree requirements as long as they were completed with at least a B (3.0 G.P.A.) and within six years of the completion date for the M.S.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). A minimum grade point average for regular admission to Graduate Certificate Program is 3.0. However, those with a G.P.A. of 2.70 can be admitted conditionally requiring that they maintain a 3.0 G.P.A. for the first two consecutive semesters. Applicants should have a Bachelor of Science degree in engineering. Applicants with degrees in chemistry, physics, or life sciences who wish to be considered for admission must have completed the undergraduate engineering calculus sequence and the calculus-based undergraduate physics sequence.

## Requirements – Traditional Program

Students must complete sixteen credits in BME courses related to injury biomechanics, including two required courses.

Code	Title	Credits
<b>Required Courses</b>		
BME 5010	Quantitative Physiology	4
BME 7100	Mathematical Modeling in Impact Biomechanics	4
or BME 7160	Impact Biomechanics	
<b>Elective</b>		
Select eight credits from the following:		8
BME 5130	Vehicle Safety Engineering	
BME 6130	Accident Reconstruction	
BME 6480	Biomedical Instrumentation	
BME 7120	Applied Finite Element Methods in Biomechanical Analysis	
BME 7150	Biomechanics of Blast-Related Injuries	
BME 7170	Experimental Methods in Impact Biomechanics	
BME 7180	Advanced Topics: Impact Biomechanics	
<b>Total Credits</b>		<b>16</b>

All requirements must be completed within a three-year period. The minimum cumulative grade point average must be 3.0 at the time of graduation. No grade lower than a B-minus will be accepted for credit towards certificate requirements. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## Requirements – Online Program

Students must complete sixteen credits in BME courses related to injury biomechanics, including two required courses. All classes must be taken online.

Code	Title	Credits
<b>Core courses</b>		
BME 5010	Quantitative Physiology	4
BME 7160	Impact Biomechanics	4
<b>Elective courses</b>		
Select 8 credits from the following:		8
BME 5130	Vehicle Safety Engineering	
BME 6130	Accident Reconstruction	
BME 7180	Advanced Topics: Impact Biomechanics	
BME 7990	Directed Study	
<b>Total Credits</b>		<b>16</b>

All requirements must be completed within a three-year period. The minimum cumulative grade point average must be 3.0 at the time of graduation. No grade lower than a B-minus will be accepted for credit towards certificate requirements. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

# Chemical Engineering and Materials Science

Office: 1100 W. Engineering Building; 313-577-3800

Chairperson: Jeffrey Potoff

<http://engineering.wayne.edu/che/>

## Chemical Engineering

The field of chemical engineering embraces those industries in which matter is treated to effect a change of state, energy content, or composition, and in which chemical engineers may be concerned with either the processes or the process equipment used for them. Examples of such industries are: fuels and petroleum processing; heavy, fine and pharmaceutical chemicals; textiles and fibers; food processing and products; natural and synthetic rubbers and plastics; explosives, pulp and paper; surface coatings; disposal of chemical plant wastes; atomic energy processes; environmental control and medical systems; and the general fields of biotechnology.

Areas of specialized research and support for graduate students include thermodynamics and transport properties of polymer solutions and melts, processing, rheology and separations of polymers, heterogeneous catalysis, surface science of catalytic and polymeric materials, environmental transport and management of hazardous waste, process design, control, and manufacturing based on sustainability principles, renewable energy, biocatalysis in multiphase systems, bioremediation for waste treatment, tissue engineering, and pharmacokinetics.

## Materials Science and Engineering

Materials problems constitute an important area of research and development in the complex technology of our industrial society. The use of advanced materials, such as thermoplastic and thermoset polymers, intermetallic alloys, reinforced plastic or metal composites, ceramics and electronic materials, in the manufacturing of durable goods and devices has presented challenges to the profession of materials science and engineering. Materials engineers must understand the behavior of advanced materials, their chemical, mechanical, optical, thermal, and electrical properties, and the atomic or molecular structure that determines these properties. They can then apply their knowledge to the synthesis and processing of materials into useful products by controlling and improving their properties.

Areas of specialized research and support for graduate students include processing and rheology of polymers, thermodynamics and transport properties of polymer solutions and melts, computer simulation of polymeric and microporous materials, deformation and fracture of materials at elevated temperatures, effects of processing on mechanical properties of intermetallic alloys, influences of microstructure on fatigue, fracture toughness, stress cracking and corrosion in metals, nondestructive mechanical testing of composites, surface science of catalytic and polymeric materials, electronic materials and sensors for automotive applications.

- Chemical Engineering (M.S.) (p. 139)
- Materials Science and Engineering (M.S.) (p. 141)
- Chemical Engineering (Ph.D.) (p. 140)
- Materials Science and Engineering (Ph.D.) (p. 141)
- Polymer Engineering Graduate Certificate (p. 141)

## Chemical Engineering (M.S.)

The Master of Science program is open to students with a bachelor's degree in engineering, and other mathematics-based sciences. The

program is designed to accommodate those students employed in local industries, as well as full-time students, by offering a majority of its courses in the evening.

Admission to this program is contingent upon admission to the Graduate School (<https://wayne-curr.courseleaf.com/graduate/general-information/admission/>). Regular admission requires a 3.0 grade point average or the equivalent as determined by the Department Graduate Officer.

This Master of Science degree is offered under the following options:

**Plan A:** Thirty credits including a six credit thesis.

**Plan C:** Thirty credits of coursework.

Both options require the following core courses:

Code	Title	Credits
CHE 7100	Advanced Engineering Mathematics	3
CHE 7200	Advanced Transport Phenomena	3
CHE 7300	Advanced Thermodynamics	3
CHE 7400	Advanced Kinetics and Reactor Design	3

- A maximum of 9 approved credits can be taken from other Departments in Engineering (excluding Engineering Technology), Chemistry, Physics, Mathematics, Biology Departments
- No more than 3 credits can be taken in combination of CHE 7990 (<https://wayne-curr.courseleaf.com/search/?P=CHE%207990>), CHE 8996 (<https://wayne-curr.courseleaf.com/search/?P=CHE%208996>), CHE 8510 (<https://wayne-curr.courseleaf.com/search/?P=CHE%208510>)
- No more than 1 credit per semester of CHE 8510 (<https://wayne-curr.courseleaf.com/search/?P=CHE%208510>)

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## Combined B.S./M.S. for Students with a B.S. in Chemistry

This program is designed for individuals who have earned a baccalaureate in chemistry from an accredited United States institution with a minimum grade point average of 3.0. Students are first admitted into the undergraduate program and are then eligible to earn both the B.S. in Chemical Engineering and, once admitted to the Graduate School, the M.S. degree. Evaluation of prerequisite requirements and applicable transfer credit will be determined by the departmental advisor.

A combined total of sixty-three credits is required: a minimum of thirty-three credits for the second baccalaureate and thirty credits for the master's degree.

### Undergraduate Course Requirements

Code	Title	Credits
BE 1500	Introduction to Programming and Computation for Engineers	3
CHE 2800	Material and Energy Balances	4
CHE 3100	Transport Phenomena I	3
CHE 3300	Thermodynamics: Chemical Equilibria	4
CHE 3400	Kinetics and Reactor Design	4
CHE 3600	Transport Phenomena II	3
CHE 3800	Separation Processes	3
CHE 4200	Product and Process Design	3

CHE 4600	Process Dynamics and Simulation	3
CHE 4800	Chemical Process Integration	3
<b>Total Credits</b>		<b>33</b>

### Graduate Course Requirements

Code	Title	Credits
CHE 5050	Statistics and Design of Experiments	3
CHE 6570	Safety in the Chemical Process Industry	3
CHE 7100	Advanced Engineering Mathematics	3
CHE 7200	Advanced Transport Phenomena	3
CHE 7300	Advanced Thermodynamics	3
CHE 7400	Advanced Kinetics and Reactor Design	3
CHM 5440	Physical Chemistry II	4
Technical Electives (8 credits; maximum 3 transfer credits of 5000 level chemistry)		8

Dual registration required when enrolling in both UG and GR courses simultaneously during any given semester

UG degree can be awarded upon completion of all UG degree requirements and graduate equivalent of UG requirements: CHE 6570, CHE 5050, and CHM 5440.

For additional information regarding specific course requirements, contact the departmental advisor.

## Chemical Engineering (Ph.D.) Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Regular admission requires a 3.5 grade point average in a Master of Science program, or a Bachelor of Science program from an accredited U.S. institution. Evaluation of admission prerequisites will be determined by the Department Graduate Officer.

### Program Requirements

Candidates for the doctoral degree must complete ninety credits beyond the baccalaureate, including thirty credits of dissertation direction. The thirty credit dissertation registration requirement is fulfilled by registering for the courses CHE 9991, CHE 9992, CHE 9993, and CHE 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. Credit distribution must also include at least thirty credits in graduate courses numbered 7000 and above, including the core courses:

Code	Title	Credits
CHE 7100	Advanced Engineering Mathematics	3
CHE 7200	Advanced Transport Phenomena	3
CHE 7300	Advanced Thermodynamics	3
CHE 7400	Advanced Kinetics and Reactor Design	3

The program requires a qualifying examination (written and oral, taken after the equivalent of one year of course work), an approved dissertation outline and prospectus, and a final oral examination after completion of the doctoral dissertation. Students should consult the Graduate School's regulations (p. ) governing doctoral study.

# Materials Science and Engineering (M.S.)

Admission to this program is contingent upon admission to the Graduate School (<https://wayne-curr.courseleaf.com/graduate/general-information/admission/>).

The Master of Science in Materials Science and Engineering program is open to students with a bachelor's degree in engineering or the physical sciences. Admission requires a 3.0 grade point average, or the equivalent as determined by the Department Graduate Officer. Applicants whose baccalaureate degrees are not in materials or metallurgical engineering, or whose undergraduate preparation is evaluated as insufficient, may be required to elect additional courses prior to admission.

This Master of Science degree is offered under the following options:

**Plan A:** Thirty credits including a six credit thesis.

**Plan C:** Thirty credits of coursework.

Both options require the following core courses:

Code	Title	Credits
MSE 5650	Surface Science	3
MSE 7300	Advanced Thermodynamics	3
MSE 7400	Mechanical Behavior of Materials	3
PHY 6450	Introduction to Material and Device Characterizations	4

- A maximum of 9 approved credits can be taken from other Departments in Engineering (excluding Engineering Technology), Chemistry, Physics, Mathematics, Biology Departments
- No more than 3 credits can be taken in combination of MSE 7990 (<https://wayne-curr.courseleaf.com/search/?P=MSE%207990>), MSE 8996 (<https://wayne-curr.courseleaf.com/search/?P=MSE%208996>), CHE 8510 (<https://wayne-curr.courseleaf.com/search/?P=CHE%208510>)
- No more than 1 credit per semester of CHE 8510 (<https://wayne-curr.courseleaf.com/search/?P=CHE%208510>)

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

# Materials Science and Engineering (Ph.D.)

Admission to this program is contingent upon admission to the Graduate School (p. 21). Regular admission requires a 3.5 grade point average in the Master of Science degree or in the Bachelor of Science degree, from an accredited U.S. institution, and the written approval of the student's advisor (selected from the departmental faculty). Evaluation of admission credits is determined by the Department Graduate Officer.

A minimum of ninety credits beyond the Bachelor of Science degree is required in the Doctor of Philosophy program, including thirty credits in dissertation direction. The thirty credit dissertation registration requirement is fulfilled by registering for the courses MSE 9991, MSE 9992, MSE 9993, and MSE 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. Credit distribution must also include at least thirty credits in graduate courses numbered 7000 and above, including four core courses:

Code	Title	Credits
MSE 5650	Surface Science	3
MSE 7300	Advanced Thermodynamics	3
MSE 7400	Mechanical Behavior of Materials	3
CHM 7060	Materials Chemistry and Engineering	3
or PHY 6450	Introduction to Material and Device Characterizations	

Also required are: a qualifying examination, taken after the equivalent of one academic year of course work; an approved dissertation outline and prospectus; and a final oral examination, taken after the completion of the Ph.D. dissertation. Students should consult the Graduate School's regulations (p. ) governing doctoral study.

# Polymer Engineering (Graduate Certificate)

This program provides specialized formal education for working engineers and scientists. Those enrolled in the program will learn the fundamentals of polymer science and engineering, extend their knowledge of current polymer research topics, and maintain technical competitiveness by broadening their polymer expertise.

**Admission** to this program is contingent upon admission to the Graduate School (p. 21). Applicants must have a Bachelor of Science degree in engineering, chemistry, or physics.

Students must complete twelve credits:

Code	Title	Credits
CHE 5350	Polymer Science	3
CHE 5360	Polymer Processing	3
Select six credits in electives		6
<b>Total Credits</b>		<b>12</b>

The minimum grade point average must be 3.0. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). For additional information and advice about electives, contact Dr. Z. Cao ([zcao@wayne.edu](mailto:zcao@wayne.edu)).



# Civil and Environmental Engineering

Office: 2100 E. Engineering Building; 313-577-3789

Chairperson: William Shuster

<http://engineering.wayne.edu/cee/>

In an increasingly pluralistic society, our urban centers and infrastructure is under a great deal of pressure to provide services that are equitable, affordable, and flow uninterrupted. This condition has brought into sharp focus the profession of civil engineering and the responsibilities of its practitioners. The civil engineer is a leader in such diverse areas of concern as the design of structural systems; water resources planning; the treatment and ultimate processing of solid and liquid wastes; design of building systems which will provide adequate housing for urban dwellers, commerce and industry; the development of transportation systems that serve all; construction methods and management; and the implementation and management of public works infrastructure projects designed to improve the overall urban environment. The responsibilities of the civil engineer directly involve the health, safety and welfare of the public.

The Department of Civil and Environmental Engineering offers graduate degree programs (MSCE, Ph.D.) in which students may specialize in the following areas: structures, environmental engineering, transportation, and in cooperation with the Engineering Technology Division, construction management.

- Civil Engineering (M.S.) (p. 142)
- Environmental and Sustainability Engineering (M.S.) (p. 142)
- Civil Engineering (Ph.D.) (p. 143)
- Civil Engineering and Urban Sustainability (Ph.D. Dual-Title) (p. 143)

## Civil Engineering (M.S.)

The civil engineering graduate program at Wayne State University is designed to accommodate the needs of both full-time on-campus students and part-time students concurrently employed by local industry or government. To this end, a majority of graduate classes are held in the evening. Full-time students have the opportunity to participate in research and experimental work with the faculty, while pursuing their graduate courses.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Additionally, all applicants must satisfy the following:

1. The student must have earned a Bachelor of Science (or Bachelor of Engineering) degree. The undergraduate degree should be from an Accrediting Board for Engineering and Technology (ABET) institution or from a comparable foreign institution. In the event that the undergraduate degree is from a field other than civil engineering or from a non-ABET accredited institution, the student may be required to complete a set of prerequisite undergraduate courses before graduate degree credit may be accrued
2. The student must have an overall grade point average (g.p.a.) of 3.2 for regular admission. Qualified or probationary admission may be granted to students with a lower g.p.a. Conditions of such admissions are specifically mandated and applicants should contact the Department for details.

## Program Requirements

The Master of Science is offered by this department under the following options:

**Plan A:** Thirty credits including a six-credit thesis.

**Plan C:** Thirty credits of coursework.

For either plan, credits must be distributed as follows: at least twenty credits must be taken in the major (CE courses). There must be two courses numbered 7000-8999, and a cluster of courses which will constitute a core, to be selected from one of the following areas: environmental engineering, geotechnical engineering, structures, transportation, and construction management.

Students must maintain a grade of 'B' or better in all core courses. The credit distribution requirements do not include thesis credit for Plan A candidates.

Within the first nine to twelve credits in graduate work, the student should file an advisor-approved Plan of Work. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

M.S. students may take a maximum of three credits of CE 7990 and a maximum of three credits of CE 7996. Registration in CE 7990 and/or CE 7996 must be approved by a faculty advisor and the graduate program director.

## Environmental and Sustainability Engineering (M.S.)

The Master of Science in Environmental and Sustainability Engineering aims to advance environmental engineering and sustainability to enhance human well-being through the development, application, and dissemination of relevant knowledge. The curriculum is arranged into four themes:

1. Systems & Resources – topics within this area vary in scale and include: modeling of groundwater, surfacewater, and air systems; engineered systems such as drinking water distributions systems; and interactions between the environment and urban systems (e.g. stormwater management).
2. Treatment & Sensing Technologies – topics within this area focus on the mitigation and quantification of pollutants loads to the environment, including humans, within all media (air, water, soils).
3. Bio-chemical-physical Processes – topics within this area focus on fundamental process that control the fate and transport of pollutants, including remediation techniques.
4. Environmental Exposure and Risk – topics within this area focus on identifying, quantifying and reducing risk.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

The M.S. in Environmental and Sustainability Engineering will admit students with bachelor's degrees or the equivalent in engineering and other qualified science programs if there is a demonstrated aptitude for quantitative analysis. The degree program is suitable for new or recent graduates, as well as experienced professionals. Students will be required to have significant mathematics-based science capabilities. Students should have an overall grade point average (g.p.a.) of 3.2 for regular admission. Qualified or probationary admission may be granted with a lower g.p.a. As noted above, field/professional experience will be viewed positively in the application review process.

# Program Requirements

The M.S. in Environmental and Sustainability Engineering requires a minimum of thirty credits under one of two degree plans approved by the College of Engineering:

- Plan A:** consists of a minimum of twenty-four credit hours of course-work in combination with a minimum of six credits of thesis.
- Plan C:** consists of a minimum of thirty credits of course-work.

MS students may take a maximum of three credits of CE 7990 and a maximum of three credits of CE 7996. Registration in CE 7990 and/or CE 7996 must be approved by a faculty advisor and the graduate program director.

The program is designed to provide graduates a core of systems, treatment, process, and exposure/risk skills in research and applied situations.

Code	Title	Credits
<b>Students must take at least one course from each of the four foundational areas described below. Other courses may satisfy foundational area requirements if approved by Graduate Program Director.</b>		

<b>Water Resources Foundational Area:</b>		
CE 6130	Open Channel Hydraulics	
CE 6150	Hydrologic Analysis and Design	
CE 6190	Groundwater	
<b>Chemistry Foundational Area:</b>		
CE 5220	Environmental Chemistry	
CE 6160	Principles of Atmospheric Chemistry and Applications	
CE 7160	Advanced Principles of Atmospheric Chemistry and Applications	
<b>Biology Foundational Area:</b>		
CE 7280	Applied Environmental Microbiology	
<b>Statistics Foundational Area:</b>		
CE 7070	Risk and Reliability in Civil Engineering	
CE 7080	Civil Engineering Research Methods	
<b>Other Civil &amp; Environmental Engineering course options include:</b>		
CE 5230	Water Supply and Wastewater Engineering	
CE 5410	Energy, Emissions, Environment (E3) Design	
CE 5510	Geotechnical Engineering I	
CE 5520	Geotechnical Engineering II	
CE 5995	Special Topics in Civil Engineering I	
CE 6170	River Assessment and Restoration I	
CE 6270	Sustainability Assessment and Management	
CE 6580	Geoenvironmental Engineering I	
CE 6910	Pharmaceutical Waste: Environmental Impact and Management	
CE 7170	Advanced River Assessment and Restoration I	
CE 7190	Groundwater Modeling	
CE 7220	Industrial Waste Treatment	
CE 7240	Advanced Air Pollution Engineering	
CE 7311	Sustainability of Urban Environmental Systems	
CE 7500	Engineering Properties of Soils	
CE 7580	Environmental Remediation	
CE 7990	Directed Study	
CE 7995	Special Topics in Civil Engineering II	

CE 7996	Research
CE 8999	Master's Thesis Research and Direction
<b>Students may also take up to 9 credits from electives (as approved by advisor), such as:</b>	
CHE 7200	Advanced Transport Phenomena
ME 5300	Intermediate Fluid Mechanics
ME 7310	Computational Fluid Mechanics and Heat Transfer
IE 6210	Applied Engineering Statistics
IE 6270	Engineering Experimental Design
BIO 5100	Aquatic Ecology
MAT 5070	Elementary Analysis
MAT 5770	Mathematical Models in Operations Research
MAT 5870	Methods of Optimization

The graduation requirement is completion of the M.S. courses with an overall GPA of 3.00 or higher. All core classes in the program must be completed with a 3.00 score or better. And all course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## Civil Engineering (Ph.D.)

The Department offers doctoral programs in all the major areas listed as core specializations under the Master of Science degree: environmental engineering, geotechnical engineering, structures, transportation, and construction management.

To gain admission to the Ph.D. program in civil engineering, students should have a Bachelor of Science (or Bachelor of Engineering) degree from an ABET accredited institution (or from a comparable foreign institution) with an overall GPA of 3.3 or greater. Students who do not satisfy these minimum requirements must earn a Master of Science (or Master of Engineering) in civil or environmental engineering, or in a closely related field, with a GPA in graduate courses no less than 3.5 (or equivalent). Only regular admission may be granted to the Ph.D. program. After completing a B.S. degree, if a student in the Ph.D. program fails to meet all subsequent requirements thereof, they may elect to transfer appropriate credits towards the M.S. Civil Engineering (MSCIV) or M.S. Environmental and Sustainability Engineering (MSESE) degree program.

Candidates for the doctoral degree must complete ninety credits beyond the baccalaureate, including thirty credits of dissertation direction, and sixty credits of course work and directed study. The thirty credit dissertation registration requirement is fulfilled by registering for the courses CE 9991, CE 9992, CE 9993, and CE 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. All doctoral students are required to submit a Plan of Work indicating their course work (with major/minor designation), and developed in consultation with an advisor. Additionally, students should consult the Graduate School's regulations (p. ) governing doctoral study.

Doctoral students may take a maximum of six credits of CE 7990 and a maximum of six credits of CE 7996. Registration in CE 7990 and/or CE 7996 must be approved by a faculty advisor and the graduate program director.

## Civil Engineering and Urban Sustainability (Ph.D. Dual-Title)

Students admitted to the Ph.D. program in Civil and Environmental Engineering can apply to earn a Ph.D. with a major in Civil and Environmental Engineering and a dual-title in Urban Sustainability. This

dual-title degree is designed to prepare professionals to solve challenging urban problems that require working across disciplines. Students enrolled in the dual-title program take courses in topics and develop specific skills relating to urban sustainability. Students in Civil and Environmental Engineering will also conduct an internship or science exchange in Urban Sustainability, help develop and participate in colloquia and seminars, perform community service, and write funding proposals. The dual-title coursework follows competencies outlined by the Transformative Research in Urban Sustainability Training program.

Coursework for the Civil and Environmental Engineering-Urban Sustainability Degree is currently offered in ten departments across campus. To earn the urban sustainability dual title, students first must be admitted into the doctoral programs in Civil and Environmental Engineering. Coursework must include five of six core courses shown in Table 1 (BIO 7310/CE 7311 and GS 0900 are required) plus 8 credits of urban sustainability coursework selected from Table 2 with the approval of their doctoral advisor, who will review the courses for adequate interdisciplinary representation. Alternative elective courses can be substituted for those shown in Table 2 with the approval of the Civil and Environmental Engineering Urban Sustainability Leader, Dr. Carol Miller. Of the core courses, a seminar course, "Sustainability of Urban Environmental Systems," is suitable for cross-listing in all departments that offer the urban sustainability dual title degree (currently listed as BIO 7310/CE 7311).

Doctoral students may take a maximum of six credits of CE 7990 and a maximum of six credits of CE 7996. Registration in CE 7990 and/or CE 7996 must be approved by a faculty advisor and the graduate program director.

**Table 1. Core Courses for all Urban Sustainability Dual Title Degrees**

Code	Title	Credits
CE 7311	Sustainability of Urban Environmental Systems	2
CE 7995	Special Topics in Civil Engineering II (Environmental Systems, Economics, and Society)	3
ANT 5060	Urban Anthropology	3
COM 7170	Health and Risk Communication	3
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
UP 6470	Environmental Planning	3

**Table 2. Elective Coursework Eligible for Civil and Environmental Engineering-Urban Sustainability Degree**

Code	Title	Credits
ANT 5565	Urban Archaeology	3
ANT 6570	Archaeological Laboratory Analysis	4
BIO 5040	Biometry	4
BIO 5180	Field Investigations in Biological Sciences	0-12
BIO 7540	Landscape Ecology	3
BIO 6420	Ecotoxicology and Risk Assessment	3
CE 6160	Principles of Atmospheric Chemistry and Applications	3
CE 6270	Sustainability Assessment and Management	3
CE 7160	Advanced Principles of Atmospheric Chemistry and Applications	3
CE 7240	Advanced Air Pollution Engineering	3
CE 7280	Applied Environmental Microbiology	3
CE 7995	Special Topics in Civil Engineering II (River Assessment and Restoration)	3
COM 7160	Crisis Communication	3

ECO 6200	Advanced Regulation and Regulated Industries	4
ECO 6520	Advanced State and Local Public Finance	4
ECO 6800	Advanced Urban and Regional Economics	4
ESG 5000	Geological Site Assessment	4
ESG 5510	Environmental Fate and Transport of Pollutants	4
ESG 5610	Special Topics in Environmental Science and Geology	1
ESG 5650	Applied Geologic Mapping	4
FPH 7420	Principles of Environmental Health	3
LEX 7231	Environmental Law	2-3
PHC 7410	Principles of Toxicology	3
or BIO 7011	Principles of Toxicology	
PSC 6910	Pharmaceutical Waste: Environmental Impact and Management	2-3
or CE 6910	Pharmaceutical Waste: Environmental Impact and Management	
UP 5110	Urban Planning Process	3
UP 5430	Cities and Food	3
UP 6120	Planning Studies and Methods	4
UP 6260	Land Use Policy and Planning	3
UP 6700	Geographic Information Systems	4

Other activities required for the Civil and Environmental Engineering-Urban Sustainability Degree are the following:

1. Community service: participate in two events per year or an equivalent commitment to citizen science, stewardship or outreach/education projects with community group partners.
2. Participate in Colloquium: help develop and attend an annual series of talks given by visiting lecturers across disciplines.
3. Prepare and submit an external proposal to a funding agency.

These requirements will be satisfied in the core courses. Specifically, participation in colloquia and seminars is a requirement in *Sustainability of Urban Environmental Systems* and *Urban Anthropology*, partaking in community service is an activity in the *Environmental Planning and Urban Ecology* class, and writing funding proposals is a course assignment in *Sustainability of Urban Environmental Systems* and *Environmental Systems, Economics and Society*. In addition, the requirement of community service will also be part of the course requirement for *Essential Research Practices: Responsible Conduct of Research* (GS 0900).

In addition, doctoral students will be strongly encouraged to:

1. Participate in an internship in an applied setting with a partner organization in urban sustainability. Example eligible organizations with which the Civil and Environmental Engineering Department has previously partnered include Southwest Detroit Environmental Vision, Macomb County, U.S. Army Corps of Engineers and Great Lakes Water Authority, but participation is not limited to these.
2. Produce a video documentary with their doctoral research team about the interdisciplinary sustainability problem their research is addressing, translating scientific content for a wide audience.
3. Participate in the WSU Research and Academic Development Seminar Series, which provides graduate training and career development workshops, to help prepare students to complete the required funding proposal and to envision perspectives to consider during documentary and publication preparation.
4. Produce a collaborative publication with a doctoral research team.
5. Develop a 2 credit capstone seminar course in collaboration with other students pursuing the Urban Sustainability Dual Title Degree that they will co-teach with the guidance of faculty. The capstone

course will tie together and demonstrate the interconnected nature of urban sustainability topics and will be available to fellow Dual Title Degree students and other graduate and undergraduate students.

6. Include undergraduate students in field work, laboratory analysis and report-writing, both to foster greater participation in later graduate studies by those students, and also to develop the mentoring skills of the doctoral students.

## Computer Science

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*Chairperson:* Nathan Fisher

<https://engineering.wayne.edu/computer-science/> (<https://engineering.wayne.edu/computer-science/>)

The mission of the Department of Computer Science at Wayne State University is to provide excellence in teaching, research, public service, and leadership in the computer science profession and the community. The Department provides a high-quality, innovative, baccalaureate and graduate education that emphasizes the fundamentals of computer science as well as the most recent technological innovations, preparing students for employment and advanced studies. Students are encouraged to become involved in research programs in order to enhance their education and their employment opportunities. Through the use of our state-of-the-art laboratory facilities, students can conduct basic and applied research of high quality, influence, visibility, and potential community impact. The Department continues to develop cooperative research relationships within and outside the computer science discipline, as well as with industry, government and alumni, and local community organizations. This worldwide interaction with professional organizations provides our students with the highest standards, goals, and professional practices.

The Department of Computer Science operates eight instructional and multiple research laboratories comprising about 300 state-of-the-art workstations and servers.

- Computer Science (M.S.) (p. 147)
- Computer Science (Ph.D.) (p. 149)
- Artificial Intelligence (M.S.) (p. 145)
- Data Science and Business Analytics (M.S.) (p. 151)
- Robotics (M.S.) (p. 152)

## Artificial Intelligence (M.S. with a major in AI Software and Systems)

Artificial Intelligence (AI) is an area of study that explores how to endow machines with the ability to learn, make decisions, reason about data, and communicate with humans. In the Wayne State University's Master of Science in Artificial Intelligence (MSAI) program, students learn to apply problem-solving, creative thinking, algorithmic design, and computer programming skills to build modern AI systems.

Students will gain deep technical training and expertise in a selected concentration area, which include AI Hardware and Systems, AI Algorithm and Systems, and Industrial AI. The program prepares students to (1) work as engineers, consultants and entrepreneurs in industries where AI can provide a competitive edge, or (2) pursue a Ph.D. degree in computer science, electrical engineering, industrial and systems engineering, or other related fields.

Applicants must meet requirements for admission to the Graduate School (p. 21). Students must have a bachelor's degree or the equivalent in Engineering from an accredited college or university. Students from all science, technology, engineering, and math (STEM) disciplines will be considered for admission.

The proposed program requires 30 credits for graduation, either Plan A (24 credits of coursework plus 6 credits of master's thesis) or Plan C (30 credits of coursework). All courses must be graduate-level courses offered within the College of Engineering. All course work must be



completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

A minimum grade point average of 3.00 for the MSAI program is required to obtain the master's degree. A maximum of one course in which a C has been received may be used to meet graduation requirements, provided this is offset by sufficient A grades to maintain the required 3.00 average.

The co-advisor for each major, in working with students to develop their academic plan, will determine which electives are appropriate for their major.

## AI Hardware and Systems Major

Hosted by the Electrical and Computer Engineering (ECE) department.

### Degree Requirements

- 9 credit hours from AI Hardware and Systems core
- 3 credit hours from AI Algorithms and Systems core
- 3 credit hours from Industrial AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from AI Hardware and Systems electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from AI Hardware and Systems electives
- Plan A: 6 credit hours of ECE 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
ECE 5995	Special Topics in Electrical and Computer Engineering I *	3
ECE 7500	Artificial Intelligence for Natural Language Processing	3
ECE 7640	Online and Adaptive Methods for Machine Learning	3
<b>Elective courses</b>		
ECE 5560	Analysis and Design of Analog Integrated Circuits	3
ECE 5770	Digital Signal Processing	4
ECE 5995	Special Topics in Electrical and Computer Engineering I *	3
ECE 5690	Introduction to Digital Image Processing	4
ECE 7430	Discrete Event Systems with Machine Learning	4
ECE 7680	Advanced Digital Image Processing and Applications	4
ECE 7995	Special Topics in Electrical and Computer Engineering II *	3

\* Contact an advisor for specific topics that can apply to the AI Hardware and Systems major.

## AI Algorithms and Systems Major

Hosted by the Computer Science (CSC) department.

### Degree Requirements

- 9 credit hours from AI Algorithms and Systems core
- 3 credit hours from AI Hardware and Systems core
- 3 credit hours from Industrial AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from AI Algorithms and Systems electives, or

- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from AI Algorithms and Systems electives
- Plan A: 6 credit hours of CSC 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
CSC 5825	Introduction to Machine Learning and Applications	3
CSC 6800	Artificial Intelligence I	3
CSC 7760	Deep Learning	3
<b>Elective courses</b>		
CSC 5100	Introduction to Mobility	3
CSC 5272	Principles of Cyber Security	3
CSC 5280	Introduction to Cyber-Physical Systems	3
CSC 5430 & CSC 5431	Game Programming and Design I and Game Programming and Design I: Lab	4
CSC 5710	Design of Intelligent Information Retrieval Systems	3
CSC 5800	Intelligent Systems: Algorithms and Tools	3
CSC 5870	Computer Graphics I	3
CSC 5991	Special Topics in Computer Science **	3
CSC 6430 & CSC 6431	Game Programming and Design II and Game Programming and Design II: Lab	4
CSC 6710	Database Management Systems I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 7710	Database Management Systems II	3
CSC 7800	Artificial Intelligence II	3
CSC 7810	Data Mining: Algorithms and Applications	3
CSC 7825	Machine Learning	3
CSC 7991	Advanced Topics in Computer Science (Not repeatable) **	3

\*\* Contact an advisor for specific topics that can apply to the AI Algorithms and Systems major.

## Industrial AI Major

Hosted by the Department of Industrial & Systems Engineering (ISE).

### Degree Requirements

- 9 credit hours from Industrial AI core
- 3 credit hours from AI Hardware and Systems core
- 3 credit hours from AI Algorithms and Systems AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from Industrial AI electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from Industrial AI electives
- Plan A: 6 credit hours of IE 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
IE 6010	IoT and Edge AI Programming	3
IE 7860	Intelligent Analytics	3
DSA 6100	Statistical Learning for Data Science and Analytics	3
<b>Elective courses</b>		
DSA 6000	Data Science and Analytics	3
DSA 6200	Operations Research	3
IE 5995	Special Topics in Industrial Engineering ***	3
IE 6000	Digital Automation	3
IE 6040	Simulation in Robotics Using ROS	3



IE 7220	Advanced Statistical Methods	3
IE 7445	Manufacturing Analytics	3
IE 7480	Knowledge-Based Design	3
IE 7521	Large Scale Optimization and Integer Programming	3
IE 7995	Graduate Special Topics ***	3

\*\*\* Contact an advisor for specific topics that can apply to the Industrial AI major.

## Computer Science (M.S.)

The Department of Computer Science awards the degree of Master of Science with a major in computer science under two plans. The two plans are distinguished on the basis of the breadth and depth of the material covered. The Master of Science degree under the Plan A option is granted to students who pursue a more concentrated set of topics culminating in a master’s thesis. The Master of Science degree under the Plan C option offers students experience in many areas of computer science.

The great variety of subjects that are part of computer science, together with the immense diversity of their applications, makes it imperative that students in the master’s program maintain close contact with their advisors in order to achieve a coherent plan of study directed toward a specific goal. In particular, elections of courses should be made after consultation with and the approval of the student’s advisor.

## Admission Requirements

Admission to these programs is contingent upon admission to the Graduate School (p. 21). In addition, applicants are expected to have attained a level of scholarship in the baccalaureate program equal to a grade point average of 3.0 or better, including adequate preparation in computer science and supporting courses in mathematics. Normally, the entering student will be expected to have fulfilled the equivalent of the requirements for the Bachelor of Science degree at Wayne State University and to have satisfied any deficiencies by successfully completing necessary prerequisite course work, before becoming an applicant for an advanced degree. The Graduate Record Examination (GRE) is not required for admission to the Master of Science program.

Applicants must submit official transcripts from each college or university attended, three letters of recommendation, Graduate Record Examination scores, a statement of approximately 300 words describing the applicant’s academic and professional goals, and the Computer Science Graduate Admission Evaluation Form.

Students planning to pursue some of the more theoretical courses may find it necessary to have additional preparation in mathematics and/or computer science. The student should make a careful examination of the prerequisites for advanced courses in his/her areas of special interest before seeking admission. Prerequisite course work which is required as a condition of admission must be completed prior to electing graduate courses.

Upon admission, each student is assigned an advisor for guidance and direction in meeting degree requirements and academic goals. As the student’s interests in computer science become more focused, a change in advisor may be necessary; forms for this purpose are available from the Department office. Such a change must be done prior to submitting the Plan of Work.

## Areas of Research

**Computer and Network Systems:** Networking & Distributed Systems, Computer Security, Parallel & Cloud Computing, Real-Time Systems, Software Engineering.

**Information and Intelligent Systems:** Databases, Machine Learning, Artificial Intelligence, Pattern Recognition, Computer Graphics & Visualization, Bioinformatics and Health Informatics.

## Degree Requirements

The Master of Science degree is offered under either Plan A or Plan C. Plan A requires thirty credits and includes eight credits for the completion of a thesis. A thesis is a technical paper describing the original creative work of the author. The master’s thesis work is directed by the student’s advisor together with a committee of at least two additional faculty members. All committee members must read and approve the thesis, after which time it must be presented at a public session prior to final acceptance. The thesis must conform to the Graduate School’s specifications on format and presentation (p. ). Plan C requires thirty credits in course work. There is no thesis required for the Plan C Master’s degree.

### Course Requirements and Restrictions for Plan A

Code	Title	Credits
Select at least 1 course (minimum 3 credits) from each of the 3 groups <sup>1</sup>		
<b>Group 1</b>		
CSC 6500	Theory of Languages and Automata	
CSC 6580	Design and Analysis of Algorithms	
<b>Group 2</b>		
CSC 5272	Principles of Cyber Security	
CSC 5100	Introduction to Mobility	
CSC 5430	Game Programming and Design I	
CSC 5431	Game Programming and Design I: Lab	
CSC 6110	Software Engineering	
CSC 6220	Parallel Computing I: Programming	
CSC 6280	Real-Time and Embedded Operating Systems	
CSC 6290	Data Communication and Computer Networks	
CSC 7220	Parallel Computing II: Algorithms and Applications	
CSC 7260	Distributed Systems	
CSC 7270	Advanced Computer Security	
CSC 7290	Advanced Computer Networking	
<b>Group 3</b>		
CSC 6430	Game Programming and Design II	
CSC 6431	Game Programming and Design II: Lab	
CSC 6710	Database Management Systems I	
CSC 6720	Data Science Applications Development	
CSC 6800	Artificial Intelligence I	
CSC 6860	Digital Image Processing and Analysis	
CSC 6870	Computer Graphics II	
CSC 7300	Bioinformatics I: Biological Databases and Data Analysis	
CSC 7301	Bioinformatics I: Programming Lab	
CSC 7410	Bioinformatics II	
CSC 7710	Database Management Systems II	
CSC 7800	Artificial Intelligence II	
CSC 7810	Data Mining: Algorithms and Applications	

CSC 7825	Machine Learning	
<b>CSC 8999</b>	<b>Master's Thesis Research and Direction</b>	<b>8</b>

<sup>1</sup> At least one course that must be taken at or above the 7000 level.

No more than three credits of CSC 7990, Directed Study, can be used to satisfy the degree requirements.

A student must have prior written consent of their advisor and the Graduate Committee Chair before registering for any course outside of the department.

At least twenty-four credits must be taken in residence.

## Course Requirements and Restrictions for Plan C

Code	Title	Credits
Select at least 1 course (minimum 3 credits) from each of the 3 groups		
<b>Group 1</b>		
CSC 6500	Theory of Languages and Automata	
CSC 6580	Design and Analysis of Algorithms	
<b>Group 2</b>		
CSC 5272	Principles of Cyber Security	
CSC 5100	Introduction to Mobility	
CSC 5430	Game Programming and Design I	
CSC 5431	Game Programming and Design I: Lab	
CSC 6110	Software Engineering	
CSC 6220	Parallel Computing I: Programming	
CSC 6280	Real-Time and Embedded Operating Systems	
CSC 6290	Data Communication and Computer Networks	
CSC 7220	Parallel Computing II: Algorithms and Applications	
CSC 7260	Distributed Systems	
CSC 7270	Advanced Computer Security	
CSC 7290	Advanced Computer Networking	
<b>Group 3</b>		
CSC 6430	Game Programming and Design II	
CSC 6431	Game Programming and Design II: Lab	
CSC 6710	Database Management Systems I	
CSC 6870	Computer Graphics II	
CSC 6720	Data Science Applications Development	
CSC 6800	Artificial Intelligence I	
CSC 6860	Digital Image Processing and Analysis	
CSC 7300	Bioinformatics I: Biological Databases and Data Analysis	
CSC 7301	Bioinformatics I: Programming Lab	
CSC 7410	Bioinformatics II	
CSC 7710	Database Management Systems II	
CSC 7800	Artificial Intelligence II	
CSC 7810	Data Mining: Algorithms and Applications	
CSC 7825	Machine Learning	

<sup>1</sup> Select at least one course must be taken at or above the 7000 level.  
CSC 7990 does not satisfy the 7000 level requirement.

All credits must be taken from CSC designated courses.

At least twenty-four credits must be taken in residence.

## AI Concentration Requirements

A master student (Plan A or C) must fulfill both breadth requirement (outlined above) and depth requirement described here, i.e., at least four lecture courses must be selected from the following list and a course can be used to fulfill both breadth and depth requirements.

Code	Title	Credits
CSC 5430	Game Programming and Design I	3
CSC 5800	Intelligent Systems: Algorithms and Tools	3
CSC 5825	Introduction to Machine Learning and Applications	3
CSC 5870	Computer Graphics I	3
CSC 6430	Game Programming and Design II	3
CSC 6800	Artificial Intelligence I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 6870	Computer Graphics II	3
CSC 7800	Artificial Intelligence II	3
CSC 7810	Data Mining: Algorithms and Applications	3
CSC 7825	Machine Learning	3

## AD Concentration Requirements

A master student (Plan A or C) must fulfill both breadth requirement (outlined above) and depth requirement described here, i.e., CSC 5100 - Introduction to Mobility and no less than three lecture courses must be selected from the following electives and a course can be used to fulfill both breadth and depth requirements.

### AD Elective Courses

The following two focuses (real-time and artificial intelligence) are used only as a guideline for the students; students are free to select courses across the two focuses.

Code	Title	Credits
<b>Focus on the real-time aspect of Autonomous Driving:</b>		
CSC 5280	Introduction to Cyber-Physical Systems	3
CSC 6280	Real-Time and Embedded Operating Systems	3
CSC 8260	Seminar in Networking, Distributed Systems and Parallel Systems	3
<b>Focus on artificial intelligence aspect of Autonomous Driving:</b>		
CSC 5825	Introduction to Machine Learning and Applications	3
CSC 6800	Artificial Intelligence I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 7800	Artificial Intelligence II	3

## Candidacy

By the time twelve credits have been earned, a Plan of Work must be developed with the student's advisor and submitted to the Chairperson of the Computer Science Graduate Committee. In the Plan of Work the student indicates his/her choice of master's program, either Plan A or C (see below). Upon approval of the Plan of Work by the Graduate Committee, the student is considered a degree candidate. The student is not permitted to take more than twelve credits in the master's program unless candidacy has been established. If the student has not graduated after two years as a candidate, the Plan of Work will be reviewed for possible adjustment.

## Scholarship/Academic Probation

Students must maintain a minimum overall 3.0 grade point average. Failure to do so for one semester places the student on academic probation. Failure to do so for two semesters will result in the student's dismissal from the graduate program. All course work must be completed

in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). The above requirements are those in force as of the publication date of this bulletin; however, students should keep in mind that the degree requirements for any particular student are those in force at the time of his/her admission.

## Online Program

The Department of Computer Science offers Online Master's of Science Program in Computer Science with concentration in Artificial Intelligence (MSCS-AI) under the plan C that offers students experience in core AI algorithms and systems. The great variety of subjects that are part of AI and computer science, together with the immense diversity of their applications will prepare the students for an advanced career in AI research and development in both public and private sectors. The quality and requirement of the Online Master Program is expected to be equivalent to the traditional in-person Program in MSCS-AI.

The Master of Science online degree is offered under Plan C only. Plan C requires thirty credits in course work. There is no thesis required for the Plan C Master's degree.

### Course Requirements and Restrictions for Plan C

Code	Title	Credits
Select at least 1 course (minimum 3 credits) from each of the 3 groups		
<b>Group 1</b>		
CSC 6500	Theory of Languages and Automata	
CSC 6580	Design and Analysis of Algorithms	
<b>Group 2</b>		
CSC 5272	Principles of Cyber Security	
CSC 5100	Introduction to Mobility	
CSC 5290	Cyber Security Practice	
CSC 5430	Game Programming and Design I	
CSC 5431	Game Programming and Design I: Lab	
CSC 5991	Special Topics in Computer Science	
CSC 6110	Software Engineering	
CSC 6220	Parallel Computing I: Programming	
CSC 6280	Real-Time and Embedded Operating Systems	
CSC 6290	Data Communication and Computer Networks	
CSC 7220	Parallel Computing II: Algorithms and Applications	
CSC 7260	Distributed Systems	
CSC 7270	Advanced Computer Security	
CSC 7290	Advanced Computer Networking	
<b>Group 3</b>		
CSC 6430	Game Programming and Design II	
CSC 6431	Game Programming and Design II: Lab	
CSC 6710	Database Management Systems I	
CSC 6870	Computer Graphics II	
CSC 6720	Data Science Applications Development	
CSC 6800	Artificial Intelligence I	
CSC 6860	Digital Image Processing and Analysis	
CSC 7300	Bioinformatics I: Biological Databases and Data Analysis	
CSC 7301	Bioinformatics I: Programming Lab	
CSC 7410	Bioinformatics II	
CSC 7710	Database Management Systems II	
CSC 7800	Artificial Intelligence II	

CSC 7810	Data Mining: Algorithms and Applications
CSC 7825	Machine Learning

<sup>1</sup> Select at least one course must be taken at or above the 7000 level. CSC 7990 does not satisfy the 7000 level requirement.

All credits must be taken from CSC designated courses.

At most six credits can be transferred from a comparable C.S. graduate program.

### AI Concentration Requirements

A master student (Plan C) must fulfill both breadth requirement (outlined above) and depth requirement described here, i.e., at least four lecture courses must be selected from the following list and a course can used to fulfill both breadth and depth requirements.

Code	Title	Credits
CSC 5430	Game Programming and Design I	3
CSC 5800	Intelligent Systems: Algorithms and Tools	3
CSC 5825	Introduction to Machine Learning and Applications	3
CSC 5870	Computer Graphics I	3
CSC 6430	Game Programming and Design II	3
CSC 6800	Artificial Intelligence I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 6870	Computer Graphics II	3
CSC 7760	Deep Learning	3
CSC 7800	Artificial Intelligence II	3
CSC 7810	Data Mining: Algorithms and Applications	3
CSC 7825	Machine Learning	3

### Candidacy

By the time twelve credits have been earned, a Plan of Work must be developed with the student's advisor and submitted to the Chairperson of the Computer Science Graduate Committee. In the Plan of Work the student indicates his/her choice of master's program, either Plan A or C (see below). Upon approval of the Plan of Work by the Graduate Committee, the student is considered a degree candidate. The student is not permitted to take more than twelve credits in the master's program unless candidacy has been established. If the student has not graduated after two years as a candidate, the Plan of Work will be reviewed for possible adjustment.

### Scholarship/Academic Probation

Students must maintain a minimum overall 3.0 grade point average. Failure to do so for one semester places the student on academic probation. Failure to do so for two semesters will result in the student's dismissal from the graduate program. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). The above requirements are those in force as of the publication date of this bulletin; however, students should keep in mind that the degree requirements for any particular student are those in force at the time of his/her admission.

## Computer Science (Ph.D.)

The Doctor of Philosophy degree is conferred upon individuals who have demonstrated the ability to make original contributions to the knowledge in the field of computer science.

The Ph.D. program develops experts and professionals who will continue in academic work, industry, or government. It encourages the attainment of excellence in research and scholarship necessary to catalyze the

advancement of computer science. The fulfillment of the doctoral degree requirements is monitored primarily through the proficiency, qualifying, and prospectus examinations, and the presentation of the dissertation.

The doctoral program emphasizes research and the Department encourages prospective Ph.D. candidates to involve themselves in faculty projects at their earliest possible opportunity.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). The successful applicant should possess a bachelor's or master's degree with a major in computer science or related field. In addition, applicants are expected to have attained a level of scholarship equal to a 3.3 grade point average or better in their most recent degree, along with adequate preparation in the computer science field and supporting courses in mathematics. Normally, the admitted student will be expected to have fulfilled the equivalent requirements for the Bachelor of Science in Computer Science, and to have satisfied any deficiencies in course content by successfully completing the pre-requisite course work prior to becoming an applicant for the advanced degree.

Applicants must submit to the Department official transcripts from each college or university that they have attended, three letters of recommendation, Graduate Record Examination scores, a statement of approximately 300 words describing the applicant's academic and professional goals, and the Computer Science Graduate Evaluation Form.

## Program Requirements

The Doctor of Philosophy degree requires ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credit. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

The computer science doctoral program is designed to be flexible, in order to meet the individual student's interests and to reflect the dynamic nature of the field. It is comprised of seven major stages:

1. **Advisor/Program Selection:** The first stage is devoted to the selection of a faculty advisor, taking course work, and the production of a Plan of Work in consultation with the student's faculty advisor. Students are encouraged to investigate the different areas of research available by talking with various graduate faculty members and attending research seminars held by the Department. Advisor selection must be done within the first semester of admission. The student will then begin course selection and outlining the Plan of Work. The approved Plan of Work must designate a primary area of research and a minor field outside the Department. The student is encouraged, in consultation with their advisor, to define his/her own primary and minor fields of interest by the selection of a cohesive grouping of available graduate courses. The Plan of Work must include at least thirty credits in course work at, or above, the 7000 level. Twenty-one of these credits must be in course work other than directed study (CSC 7990). Both CSC 6500 and CSC 6580 must be part of the students' plan of work.
2. **Proficiency Examination:** In order to demonstrate knowledge of undergraduate-level computer science fundamentals, Ph.D. students admitted in a Fall semester are required to pass the proficiency examination within the first year of starting the program. PhD students admitted in a Winter semester may elect to, with approval of the research adviser, take the proficiency examination either in March of the same year or in March of the next year. This exam is given in March of each Winter semester. All three subject tests (Discrete Mathematics, Data Structures, and Computer Programming) must be attempted. Students are given a single attempt to pass the exam.
- The final pass/fail decision will be made by the graduate committee, which considers exam scores in the three subject areas, GPA after admission to the graduate program, the research adviser's input and other evidence as determined appropriate by the graduate committee. The graduate committee may render a decision of conditional pass if necessary, in which the student must take a remedial course in the following semester, as determined by the graduate committee. This remedial course must be passed with a grade of 'B' or better. Otherwise, the student will not be allowed to continue in the Ph.D. program.
3. **Qualifying Examination:** The Qualifying Exam is designed to determine the student's capacity for critical thinking as evident in both written and oral presentations. By the end of the second year in the program, students are required to make their first attempt at this exam. The exam consists of two parts. In the first portion of the exam the student must demonstrate his/her knowledge of theoretical computer science at the graduate level in each of the two core theory areas taught in CSC 6500 and CSC 6580, both of which the student must have passed with grades of 'B' or better, or must take an additional written exam on each subject. In the second portion of the exam, the competency of the student in their major area of the research is to be demonstrated in the form of a written document and accompanying oral presentation. The exam is offered in March and November, and the student will have two opportunities to pass both parts. Failure to pass both parts of the qualifying examination by the end of the fifth semester will result in the student's removal from the Ph.D. program. Upon successful completion of this requirement, a Report on Doctor of Philosophy Oral Examination form is submitted to the Graduate School.
4. **Dissertation Committee Formation:** With the approval of the Department Graduate Committee, the student establishes a Dissertation Committee that consists of four members. If there are co-chairs, the committee will consist of five members. At least two committee members are from the student's home department, Computer Science. The Chairperson and one additional member must hold a Regular Graduate Faculty appointment in the Department of Computer Science. The committee will also include an external member from outside the department. This Committee is responsible for administering the prospectus and the dissertation defense of the candidate.
5. **Candidacy:** Candidacy is reached after the Plan of Work has been approved, the written qualifying examination has been passed, approximately fifty credits in course work have been completed, and the dissertation committee has been formed. Upon completion of these requirements, a Recommendation for Doctor of Philosophy Candidacy Status form is submitted to the Graduate School in order to advance the Ph.D. applicant to Candidate Status.
6. **Prospectus:** After completion of the written qualifying exam, the student will continue to develop the dissertation prospectus, a document that provides evidence that the prospective doctoral candidate has completed adequate preliminary research on the topic of the proposed doctoral dissertation. The principles for determining the scope of the prospectus are detailed in the Doctoral Dissertation Outline and Record of Approval form (<http://wayne.edu/gradschool/>).
7. **Dissertation:** The final stage is devoted primarily to the research and preparation of the dissertation. The thirty credit dissertation registration requirement is fulfilled by registering for the courses CSC 9991, CSC 9992, CSC 9993, and CSC 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. The dissertation research is presented and defended before the Dissertation Committee in a public lecture presentation.



# Bioinformatics and Computational Biology (Ph.D.)

The concentration in bioinformatics and computational biology is intended for doctoral students in computer science who wish to receive research training in this specialization. Students will be prepared to do inter-disciplinary work in computer science, biology, and biomedical research. They will be trained to identify important biological problems that require bioinformatics and computational solutions, and to identify and apply appropriate approaches to address these problems. This concentration has been developed to provide outstanding and highly-motivated students with the specialized training needed to initiate productive work in their chosen careers. General admission and degree requirements are the same as cited above for the Ph.D. program. Concentration requirements are as follows:

Code	Title	Credits
<b>Required Courses</b>		
CSC 7300	Bioinformatics I: Biological Databases and Data Analysis	3
CSC 7301	Bioinformatics I: Programming Lab	1
CSC 7410	Bioinformatics II	4
MGG 7010	Molecular Biology and Genetics	4
<b>Total Credits</b>		<b>12</b>

**Electives** appropriate to each student's background and interests will be selected by the student and his/her advisor and could include courses such as: IBS 7030/MGG 7030, Functional Genomics and Systems Biology.

*Note:* students must complete MGG 7010 before enrolling in the Bioinformatics CSC courses and CSC 7300 and CSC 7301 must be completed before CSC 7410.

# Data Computing (M.S. in Data Science and Business Analytics)

Analytics is a fast-growing STEM field with a high demand for individuals who possess the skills and expertise necessary to navigate the process of transforming data into insight for making sound business decisions. It's the reason that the WSU College of Engineering and the Mike Ilitch School of Business launched an innovative and interdisciplinary new master's program in data science and business analytics. Leaders in this field use data to fundamentally rethink all facets of business in many sectors, including manufacturing, supply chain, finance, and healthcare.

## Admission Requirements

Admission to any graduate program is contingent upon admission to the Graduate School (p. 21). Applicants should have 3.0 or higher cumulative undergraduate g.p.a.

## Prerequisite Knowledge

Candidates are expected to well-versed in basic probability and statistics and also familiar with some programming language. Courses will be available in the summer months for admitted applicants to refresh their knowledge or makeup for any deficiency in this knowledge.

Students without this prerequisite knowledge but otherwise possess good credentials will be given conditional admission and have to take this remedial coursework in the summer months prior to starting the program in the fall term

# Graduate Management Admission Test (GMAT) and Graduate Record Examination (GRE)

Applicants must complete the GRE or the GMAT with minimum scores in the top 75 percentile.

## Program Requirements

Students must complete a total of 30 credits in order to earn the M.S. in Data Science and Business Analytics with a major in Data Computing.

The interdisciplinary core includes 9 credits of coursework across business, computer science, and industrial engineering. On top of this integrated breadth of study covering the core areas of data science and business analytics, each student has 9 credits of major courses to give them depth in an engineering, business, or analytics area. Each student's 6 credits of elective choices can be personalized to support their individual career goals. The final piece of the curriculum is a 6-credit applied analytics practicum, in which students will work with companies and organizations on real analytics problems. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

Code	Title	Credits
<b>Module 1: Core Courses</b>		
DSB 6000	Data Science Strategy & Leadership	3
DSA 6000	Data Science and Analytics	3
DSE 6000	Computing Platforms for Data Science	3
<b>Module 2: Major Courses</b>		
DSE 6100	Data Modeling and Management	3
DSE 6200	Modern Databases	3
DSE 6300	Data Science Applications Development	3
<b>Module 3: Electives</b>		
Elective courses can come from other tracks of the Data Science & Business Analytics program or from outside the program.		6
<b>Module 4: Applied Analytics Practicum</b>		
DSE 7500	Data Science and Analytics Practicum	6
<b>Total Credits</b>		<b>30</b>

## Electives

Code	Title	Credits
ACC 7148	ERP Systems and Business Integration	3
ACC 7280	Accounting Data Analytics	3
ACC/TIS 7290	Blockchain: An Accounting and Business Perspective	3
CSC 5050	Algorithms and Data Structures	3
CSC 5250	Network, Distributed, and Concurrent Programming	3
CSC 6800	Artificial Intelligence I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 7220	Parallel Computing II: Algorithms and Applications	3
CSC 7260	Distributed Systems	3
CSC 7300	Bioinformatics I: Biological Databases and Data Analysis	3
CSC 7301	Bioinformatics I: Programming Lab	1
ECE 7610	Advanced Parallel and Distributed Systems	3
ECO 7100	Econometrics I	4
ECO 7110	Econometrics II	4
ECO 7120	Econometrics III	4
IE 6010	IoT and Edge AI Programming	3
IE 6325	Supply Chain Management	3



IE 6720	Engineering Risk and Decision Analysis	3
IE 7860	Intelligent Analytics	3
STA 5830	Applied Time Series	3
STA 6840	Applied Regression Analysis	3
TIS 7505	Information Analytics: Inbound Information Technology	3
TIS 7510	Database Management	3
TIS 7570	Advanced Business Analytics	3
TIS 7994	Digital Content Development	3
TIS 7996	Principles for Customer Relationship Management	3

\*Major courses from the other majors in the MS Data Science and Business Analytics program may also be used to satisfy the elective requirement.

## Robotics (M.S. with a major in Smart Mobility)

### Admission Requirements

Applicants must meet requirements for admission to the Graduate School (p. 24). Students must have a bachelor's degree or the equivalent in engineering from an accredited college or university. Students from all science, technology, engineering and math (STEM) disciplines will be considered for admission.

All applicants must be admitted to the Graduate School, the College of Engineering (p. 134), and a department within the college, meeting all applicable admission requirements, including a minimum grade point average of 2.75 for regular admission and 2.5 to 2.74 for qualified admission. Professional experience will be considered in admission.

### Program Requirements

The program requires students to complete a minimum of thirty credits using master's degree Plan A (24 course credits plus a 6 credit master's thesis) or Plan C (30 credits of coursework). Plan A is intended for students planning to go on to pursue a Doctoral degree. All courses must be graduate-level courses offered within the College of Engineering. The program requires applicants to *declare one of three majors*:

- **Industrial Automation**, hosted by the Engineering Technology (ET)
- **Intelligent Control**, hosted by the Electrical and Computer Engineering (ECE)
- **Smart Mobility**, hosted by the Computer Science (CSC)

The M.S. in Robotics requires competency in three foundational areas for all three majors. *A student must take one of the two courses in each of the 3 foundational areas.* In addition to fulfilling the general scholarship requirements of the Division, all course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

### Industrial Automation

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	

<b>Robot Sensing, Perception, Planning, Dynamics &amp; Control</b>		
ECE 5425	Robotic Systems I	
or MIT 5700	Industrial Robots Modeling and Simulation	
<b>Departmental Requirement</b>		<b>4</b>
ET 7430	Methods of Engineering Analysis	
<b>Electives</b>		<b>16</b>
EET 5720	Computer Networking Applications	
EET 5730	Embedded Systems Networking	
EET 7720	Advanced Computer Networking	
ET 5110	Advanced Programmable Controllers and Industrial Applications	
ET 5800	Industrial Robots Programming	
ET 5870	Engineering Project Management	
ET 7300	Advanced Battery Systems for Electric-drive Vehicles	
ET 7800	Industrial Robots Dynamics and Control	
MCT 5150	Hybrid Vehicle Technology	
MCT 5210	Energy Sources and Conversion	
MIT 5500	Machine Tool Laboratory	
MIT 7700	Robotics and Flexible Manufacturing	
ET 7999	Master's Project	
<b>Total Credits</b>		<b>30</b>

### Intelligent Control

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	
<b>Robot Sensing, Perception, Planning, Dynamics &amp; Control</b>		
ECE 5425	Robotic Systems I	
or MIT 5700	Industrial Robots Modeling and Simulation	
<b>Departmental Requirements</b>		<b>8</b>
ECE 5470	Control Systems II	
ECE 7425	Robotics Systems II	
<b>Electives</b>		<b>12</b>
ECE 5440	Computer-Controlled Systems	
ECE 5620	Embedded System Design	
ECE 6570	Smart Sensor Technology I: Design	
ECE 5690	Introduction to Digital Image Processing	
ECE 5770	Digital Signal Processing	
ECE 5960	Introduction to VLSI Systems	
ECE 7420	Nonlinear Control Systems	
ECE 7430	Discrete Event Systems with Machine Learning	
ECE 7440	Dynamic Systems and Optimal Control	
ECE 7530	Advanced Digital VLSI Design	
ECE 7690	Fuzzy Systems	
ECE 8999	Master's Thesis Research and Direction	
<b>Total Credits</b>		<b>30</b>

## Smart Mobility

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	
<b>Robot Sensing, Perception, Planning, Dynamics &amp; Control</b>		
ECE 5425	Robotic Systems I	
or MIT 5700	Industrial Robots Modeling and Simulation	
<b>Department Requirement</b>		<b>3</b>
CSC 5100	Introduction to Mobility	
<b>Electives</b>		<b>17</b>
CSC 5250	Network, Distributed, and Concurrent Programming	
CSC 5270	Computer Systems Security	
CSC 5825	Introduction to Machine Learning and Applications	
CSC 5870	Computer Graphics I	
CSC 6280	Real-Time and Embedded Operating Systems	
CSC 6800	Artificial Intelligence I	
CSC 6860	Digital Image Processing and Analysis	
CSC 6870	Computer Graphics II	
CSC 7991	Advanced Topics in Computer Science *	
CSC 8990	Graduate Seminar	
CSC 8999	Master's Thesis Research and Direction	
<b>Total Credits</b>		<b>30</b>

\* CSC 7991 should be taken with the topic area, Embedded Wireless Networking for Cyber-Physical Systems. Students should consult an advisor before choosing this course as an elective.

## Electrical and Computer Engineering

Office: 3100 W. Engineering Building; 313-577-3920  
 Chairperson: Mohammed Ismail ElNaggar  
<http://engineering.wayne.edu/ece/>

In the field of electrical and computer engineering, basic physical and mathematical principles are utilized to develop new devices, technologies, and techniques of constantly broadening and rapidly changing applications. Examples include:

- Microcomputers, parallel processing systems, and embedded systems, and their utilization in a growing range of system applications
- Signal processing techniques in telemetry and communication networks
- Image processing techniques in industrial material diagnostics and medical imaging
- Information processing techniques for data analytics and machine learning
- Photonics and fiber optic devices for applications in optical data processing, sensing, and communication
- Sophisticated control techniques, transducers, and robotics for advanced automation and electric systems
- Energy conversion devices and power systems, including smart grid, electric vehicles, and alternative energy systems
- Micro and nano-fabricated smart sensors for biomedical and environmental applications
- Systems on chip for the internet of things, cyber physical systems, wearable and implantable medical devices
- Microelectronics and integrated smart systems for a wide variety of applications, including self-driving vehicles, wireless communications, consumer electronics, instrumentation, multimedia, future smart homes and smart cities

Part-time study in courses offered in the evening allows professionals working in local industry to pursue graduate degrees concurrently with their employment.

- Computer Engineering (M.S.) (p. 155)
- Computer Engineering (Ph.D.) (p. 156)
- Electrical Engineering (M.S.) (p. 157)
- Electrical Engineering (Ph.D.) (p. 159)
- Artificial Intelligence (M.S.) (p. 153)
- Robotics (M.S.) (p. 160)

## Artificial Intelligence (M.S. with a major in AI Hardware and Systems)

Artificial Intelligence (AI) is an area of study that explores how to endow machines with the ability to learn, make decisions, reason about data, and communicate with humans. In the Wayne State University's Master of Science in Artificial Intelligence (MSAI) program, students learn to apply problem-solving, creative thinking, algorithmic design, and computer programming skills to build modern AI systems.

Students will gain deep technical training and expertise in a selected concentration area, which include AI Hardware and Systems, AI Algorithm and Systems, and Industrial AI. The program prepares students to (1) work as engineers, consultants and entrepreneurs in industries where AI can provide a competitive edge, or (2) pursue a Ph.D. degree in computer

science, electrical engineering, industrial and systems engineering, or other related fields.

Applicants must meet requirements for admission to the Graduate School (p. 21). Students must have a bachelor's degree or the equivalent in Engineering from an accredited college or university. Students from all science, technology, engineering, and math (STEM) disciplines will be considered for admission.

The proposed program requires 30 credits for graduation, either Plan A (24 credits of coursework plus 6 credits of master's thesis) or Plan C (30 credits of coursework). All courses must be graduate-level courses offered within the College of Engineering. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

A minimum grade point average of 3.00 for the MSAI program is required to obtain the master's degree. A maximum of one course in which a C has been received may be used to meet graduation requirements, provided this is offset by sufficient A grades to maintain the required 3.00 average.

The co-advisor for each major, in working with students to develop their academic plan, will determine which electives are appropriate for their major.

## AI Hardware and Systems Major

Hosted by the Electrical and Computer Engineering (ECE) department.

### Degree Requirements

- 9 credit hours from AI Hardware and Systems core
- 3 credit hours from AI Algorithms and Systems core
- 3 credit hours from Industrial AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from AI Hardware and Systems electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from AI Hardware and Systems electives
- Plan A: 6 credit hours of ECE 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
ECE 5995	Special Topics in Electrical and Computer Engineering I *	3
ECE 7500	Artificial Intelligence for Natural Language Processing	3
ECE 7640	Online and Adaptive Methods for Machine Learning	3
<b>Elective courses</b>		
ECE 5560	Analysis and Design of Analog Integrated Circuits	3
ECE 5770	Digital Signal Processing	4
ECE 5995	Special Topics in Electrical and Computer Engineering I *	3
ECE 5690	Introduction to Digital Image Processing	4
ECE 7430	Discrete Event Systems with Machine Learning	4
ECE 7680	Advanced Digital Image Processing and Applications	4
ECE 7995	Special Topics in Electrical and Computer Engineering II *	3

\* Contact an advisor for specific topics that can apply to the AI Hardware and Systems major.

## AI Algorithms and Systems Major

Hosted by the Computer Science (CSC) department.

### Degree Requirements

- 9 credit hours from AI Algorithms and Systems core
- 3 credit hours from AI Hardware and Systems core
- 3 credit hours from Industrial AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from AI Algorithms and Systems electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from AI Algorithms and Systems electives
- Plan A: 6 credit hours of CSC 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
CSC 5825	Introduction to Machine Learning and Applications	3
CSC 6800	Artificial Intelligence I	3
CSC 7760	Deep Learning	3
<b>Elective courses</b>		
CSC 5100	Introduction to Mobility	3
CSC 5272	Principles of Cyber Security	3
CSC 5280	Introduction to Cyber-Physical Systems	3
CSC 5430 & CSC 5431	Game Programming and Design I and Game Programming and Design I: Lab	4
CSC 5710	Design of Intelligent Information Retrieval Systems	3
CSC 5800	Intelligent Systems: Algorithms and Tools	3
CSC 5870	Computer Graphics I	3
CSC 5991	Special Topics in Computer Science **	3
CSC 6430 & CSC 6431	Game Programming and Design II and Game Programming and Design II: Lab	4
CSC 6710	Database Management Systems I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 7710	Database Management Systems II	3
CSC 7800	Artificial Intelligence II	3
CSC 7810	Data Mining: Algorithms and Applications	3
CSC 7825	Machine Learning	3
CSC 7991	Advanced Topics in Computer Science (Not repeatable) **	3

\*\* Contact an advisor for specific topics that can apply to the AI Algorithms and Systems major.

## Industrial AI Major

Hosted by the Department of Industrial & Systems Engineering (ISE).

### Degree Requirements

- 9 credit hours from Industrial AI core
- 3 credit hours from AI Hardware and Systems core
- 3 credit hours from AI Algorithms and Systems AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from Industrial AI electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from Industrial AI electives
- Plan A: 6 credit hours of IE 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
IE 6010	IoT and Edge AI Programming	3
IE 7860	Intelligent Analytics	3
DSA 6100	Statistical Learning for Data Science and Analytics	3
<b>Elective courses</b>		
DSA 6000	Data Science and Analytics	3
DSA 6200	Operations Research	3
IE 5995	Special Topics in Industrial Engineering ***	3
IE 6000	Digital Automation	3
IE 6040	Simulation in Robotics Using ROS	3
IE 7220	Advanced Statistical Methods	3
IE 7445	Manufacturing Analytics	3
IE 7480	Knowledge-Based Design	3
IE 7521	Large Scale Optimization and Integer Programming	3
IE 7995	Graduate Special Topics ***	3

\*\*\* Contact an advisor for specific topics that can apply to the Industrial AI major.

## Computer Engineering (M.S.)

### Admission Requirements

Admission to these programs is contingent upon admission to the Graduate School (p. 21). All applicants whose B.S. degree is not from an ABET-accredited college or university are required to submit additional pertinent information, including results of the general test of the Graduate Record Examination (GRE), publications, and/or inventions.

Students with B.S. degrees from selected science and engineering undergraduate programs not specifically related to this discipline may be admitted into the master's program after completing a sequence of undergraduate courses designed to prepare them for the graduate curriculum.

### ECE AGRADE Program

Outstanding undergraduates in the ECE department who meet eligibility criteria may enroll in the ECE AGRADE program. This program allows students to count up to 16 credits towards both the B.S. and M.S. degrees, enabling students to complete the B.S. and M.S. degrees within 5 years of full-time study. More information about eligibility, degree requirements, course selections, and policies may be found at <https://engineering.wayne.edu/ece/programs/aggregate.php>

### Program Requirements

The Master of Science in Computer Engineering degree requires a minimum of thirty credits. It is offered under plan Plan A: Thesis (p. 155), which includes a six credit thesis, or Plan C: Coursework (p. 156). For either plan, students may choose from courses in one or more areas of specialization within the ECE curriculum.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

#### Plan A: Thesis

Code	Title	Credits
<b>Required courses</b>		
Select 4 ECE graduate courses in Major Area - Computer Engineering, including at least one at 7000 level. <sup>1</sup>		

ECE 5280	Introduction to Cyber-Physical Systems
ECE 5425	Robotic Systems I
ECE 5440	Computer-Controlled Systems
ECE 5470	Control Systems II
ECE 5560	Analysis and Design of Analog Integrated Circuits
ECE 5620	Embedded System Design
ECE 5650	Computer Networking and Network Programming
ECE 5680	Computer-Aided Logical Design and FPGAs
ECE 5690	Introduction to Digital Image Processing
ECE 5770	Digital Signal Processing
ECE 5960	Introduction to VLSI Systems
ECE 7425	Robotics Systems II
ECE 7500	Artificial Intelligence for Natural Language Processing
ECE 7530	Advanced Digital VLSI Design
ECE 7610	Advanced Parallel and Distributed Systems
ECE 7650	Scalable and Secure Internet Services and Architecture
ECE 7660	Parallel Computer Architecture
ECE 7680	Advanced Digital Image Processing and Applications
ECE 7690	Fuzzy Systems
ECE 7730	Telematics
ECE 7860	Operation and Control of Modern Power Systems

#### Elective courses

The combined number of credits for Required and Elective courses must be at least 24.

#### List of eligible elective courses:

ECE 5000-7999 including courses in the Electrical Engineering, or Computer Engineering major area, ECE 5990 Directed Study (1 – 3 cr., repeatable up to 3 cr.), Special Topics courses ECE 5995 and ECE 7995 (repeatable up to 12 cr.), Industrial Internship ECE 6991 (1 cr., repeatable up to 3 cr.).

Non-ECE courses: Up to 6 credits of elective credits may be taken in other WSU departments or transferred from another institution, including following:

BME, ME, CHE, MSE or EVE 5000-7999 excluding directed study, research, or internship.

#### Selected classes offered by the College of Engineering:

EGR 5995 Special Topics in Engineering (repeatable up to 3 cr.)

#### Selected classes offered by Department of Computer Science:

CSC 5825 Introduction to Machine Learning and Applications  
CSC 7825 Machine Learning

#### Selected classes offered by Department of Industrial Engineering:

IE 6470 Stochastic System Modeling: Queuing and Simulation

IE 7220 Advanced Statistical Methods

IE 7710 Stochastic Processes

PHY 5000-7999 excluding directed study, physics for teachers, research, and directed study, or internship.

#### Selected classes offered by Department of Mathematics:

MAT 5600 Introduction to Analysis I

MAT 5610 Introduction to Analysis II

MAT 5710 Introduction to Stochastic Processes

MAT 5870 Methods of Optimization

MAT 7600 Real Analysis I



MAT 7610	Real Analysis II
STA 5030	Statistical Computing and Data Analysis
STA 6830	Design of Experiments
STA 6840	Applied Regression Analysis
<b>Thesis course</b>	
ECE 8999	Master's Thesis Research and Direction (This course can be taken either as a single 6-credit course during the last term in the program or as repeated courses, totaling 6 credits, during last two terms.)

<sup>1</sup> Special Topics courses ECE 5995 and ECE 7995, depending on the courses subjects, may also be counted as courses in Major Area – upon approval by Graduate Program Director.

## Plan C: Coursework

Code	Title	Credits
<b>Required courses</b>		
Select 5 ECE graduate courses in Major Area - Computer Engineering, including at least 2 at 7000 level. <sup>1</sup>		
ECE 5280	Introduction to Cyber-Physical Systems	
ECE 5425	Robotic Systems I	
ECE 5440	Computer-Controlled Systems	
ECE 5470	Control Systems II	
ECE 5560	Analysis and Design of Analog Integrated Circuits	
ECE 5620	Embedded System Design	
ECE 5650	Computer Networking and Network Programming	
ECE 5680	Computer-Aided Logical Design and FPGAs	
ECE 5690	Introduction to Digital Image Processing	
ECE 5770	Digital Signal Processing	
ECE 5960	Introduction to VLSI Systems	
ECE 7425	Robotics Systems II	
ECE 7500	Artificial Intelligence for Natural Language Processing	
ECE 7530	Advanced Digital VLSI Design	
ECE 7610	Advanced Parallel and Distributed Systems	
ECE 7650	Scalable and Secure Internet Services and Architecture	
ECE 7660	Parallel Computer Architecture	
ECE 7680	Advanced Digital Image Processing and Applications	
ECE 7690	Fuzzy Systems	
ECE 7730	Telematics	
ECE 7860	Operation and Control of Modern Power Systems	

### Elective courses

The combined number of credits for Required and Elective courses must be at least 30.

List of eligible elective courses:

ECE 5000-7999 including courses in the Electrical Engineering, or Computer Engineering major area, ECE 5990 Directed Study (1 – 3 cr., repeatable up to 3 cr.), Special Topics courses ECE 5995 and ECE 7995 (repeatable up to 12 cr.), Industrial Internship ECE 6991 (1 cr., repeatable up to 3 cr.).

Non-ECE courses: Up to 6 credits of elective credits may be taken in other WSU departments or transferred from another institution, including following:

BME, ME, CHE, MSE or EVE 5000-7999 (excluding directed study, research, or internship.

<b>Selected classes offered by the College of Engineering:</b>	
EGR 5995	Special Topics in Engineering (repeatable up to 3 cr.)
<b>Selected classes offered by Department of Computer Science:</b>	
CSC 5825	Introduction to Machine Learning and Applications
CSC 7825	Machine Learning
<b>Selected classes offered by Department of Industrial Engineering:</b>	
IE 6470	Stochastic System Modeling: Queuing and Simulation
IE 7220	Advanced Statistical Methods
IE 7710	Stochastic Processes
PHY 5000-7999 excluding directed study, physics for teachers, research, and directed study, or internship.	
<b>Selected classes offered by Department of Mathematics:</b>	
MAT 5600	Introduction to Analysis I
MAT 5610	Introduction to Analysis II
MAT 5710	Introduction to Stochastic Processes
MAT 5870	Methods of Optimization
MAT 7600	Real Analysis I
MAT 7610	Real Analysis II
STA 5030	Statistical Computing and Data Analysis
STA 6830	Design of Experiments
STA 6840	Applied Regression Analysis

<sup>1</sup> Special Topics courses ECE 5995 and ECE 7995, depending on the courses subjects, may also be counted as courses in Major Area – upon approval by Graduate Program Director.

## Computer Engineering (Ph.D.)

Admission to these programs is contingent upon admission to the Graduate School (p. 21). Applicants must have an overall grade point average of 3.6 in a Master of Science degree program,. It is possible for outstanding students to enter the Ph.D program with only a Bachelor of Science degree. All applicants whose B.S. degree is not from an ABET-accredited college or university are required to submit additional pertinent information, including results of the general test of the Graduate Record Examination (GRE), publications, and/or inventions.

Candidates for the doctoral degree must complete ninety credits beyond the bachelor's degree, including thirty credits of dissertation direction. The thirty credit dissertation registration requirement is fulfilled by registering for the courses ECE 9991 (<http://bulletins.wayne.edu/search/?P=ECE%209991>), ECE 9992 (<http://bulletins.wayne.edu/search/?P=ECE%209992>), ECE 9993 (<http://bulletins.wayne.edu/search/?P=ECE%209993>), and ECE 9994 (<http://bulletins.wayne.edu/search/?P=ECE%209994>) (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. The division of these credits includes 60 credits of pre-candidacy coursework, and 30 credits of dissertation research. Students are required to complete a preliminary exam, prospectus exam, and a public defense of a doctoral dissertation, completed with a research advisor. Students entering the program with an MS degree may transfer up to 30 credits towards pre-candidacy coursework. Details about degree requirements and course curriculum may be found at <https://engineering.wayne.edu/ece/programs/phd.php>.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). For additional information, students should consult the Graduate School's regulations (p. ) governing doctoral study.



# Electrical Engineering (M.S.)

## Admission Requirements

Admission to these programs is contingent upon admission to the Graduate School (p. 21). All applicants whose B.S. degree is not from an ABET-accredited college or university are required to submit additional pertinent information, including results of the general test of the Graduate Record Examination (GRE), publications, and/or inventions.

Students with B.S. degrees from selected science and engineering undergraduate programs not specifically related to this discipline may be admitted into the master's program after completing a sequence of undergraduate courses designed to prepare them for the graduate curriculum.

## ECE AGRADE Program

Outstanding undergraduates in the ECE department who meet eligibility criteria may enroll in the ECE AGRADE program. This program allows students to count up to 16 credits towards both the B.S. and M.S. degrees, enabling students to complete the B.S. and M.S. degrees within 5 years of full-time study. More information about eligibility, degree requirements, course selections, and policies may be found on the department's website (<https://engineering.wayne.edu/ece/programs/aggregate.php>).

## Interdisciplinary Physics-ECE AGRADE Program

Outstanding seniors in Physics (both Applied Physics option and Fundamental Physics option) who meet eligibility criteria may apply for the cross-college AGRADE program between the Physics undergraduate program (College of Liberal Arts and Sciences) and Electrical Engineering (EE) Master's programs (College of Engineering). The Physics-ECE AGRADE program allows students to count up to 16 credits of selected graduate courses towards a B.S. degree in physics as well as an M.S. degree in Electrical Engineering. This enables students to complete both degrees within 5 years of full-time study. More information about eligibility, degree requirements, course elections, and academic policies may be found on the department's website (<https://engineering.wayne.edu/ece/programs/aggregate.php>).

## Requirements – Traditional Program

The Master of Science in Electrical Engineering degree requires a minimum of thirty credits. It is offered under plan Plan A: Thesis (p. 157), which includes a six credit thesis, or Plan C: Coursework (p. 158). For either plan, students may choose from courses in one or more areas of specialization within the ECE curriculum.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

### Plan A: Thesis

Code	Title	Credits
<b>Required courses</b>		
Select 4 ECE graduate courses in Major Area - Electrical Engineering, including at least one at 7000 level. <sup>1</sup>		
ECE 5100	Quantitative Physiology	
ECE 5280	Introduction to Cyber-Physical Systems	
ECE 5330	Modeling and Control of Power Electronics and Electric Vehicle Powertrains	
ECE 5340	Advanced Energy Storage Systems for Electrification of Vehicles	

ECE 5350	Alternative Energy Sources and Conversions
ECE 5410	Power Electronics and Control
ECE 5425	Robotic Systems I
ECE 5430	Electric Energy Systems Engineering
ECE 5440	Computer-Controlled Systems
ECE 5460	Stochastic Processes in Engineering
ECE 5470	Control Systems II
ECE 5550	Solid State Electronics
ECE 5560	Analysis and Design of Analog Integrated Circuits
ECE 5575	Introduction to Micro and Nano Electro Mechanical Systems (MEMS/NEMS)
ECE 5580	Advanced Nanoelectronics
ECE 5620	Embedded System Design
ECE 5650	Computer Networking and Network Programming
ECE 5675	Sensors and Sensor Instrumentation
ECE 5680	Computer-Aided Logical Design and FPGAs
ECE 5690	Introduction to Digital Image Processing
ECE 5700	Digital Communications
ECE 5770	Digital Signal Processing
ECE 5870	Optical Communication Networks
ECE 5880	Introduction to Microwave Engineering
ECE 5960	Introduction to VLSI Systems
ECE 6180	Biomedical Instrumentation
ECE 6570	Smart Sensor Technology I: Design
ECE 7030	Mathematical Methods in Engineering I
ECE 7100	Mathematical Modeling in Impact Biomechanics
ECE 7420	Nonlinear Control Systems
ECE 7425	Robotics Systems II
ECE 7430	Discrete Event Systems with Machine Learning
ECE 7440	Dynamic Systems and Optimal Control
ECE 7530	Advanced Digital VLSI Design
ECE 7570	Smart Sensor Technology II: Characterization and Fabrication
ECE 7650	Scalable and Secure Internet Services and Architecture
ECE 7680	Advanced Digital Image Processing and Applications
ECE 7690	Fuzzy Systems
ECE 7700	Statistical Communication Theory
ECE 7730	Telematics
ECE 7850	Photonics
ECE 7860	Operation and Control of Modern Power Systems

### Elective courses

The combined number of credits for Required and Elective courses must be at least 24.

List of eligible elective courses:

ECE 5000-7999 including courses in the Electrical Engineering, or Computer Engineering major area, ECE 5990 Directed Study (1 – 3 cr., repeatable up to 3 cr.), Special Topics courses ECE 5995 and ECE 7995 (repeatable up to 12 cr.), Industrial Internship ECE 6991 (1 cr., repeatable up to 3 cr.).

Non-ECE courses: Up to 6 credits of elective credits may be taken in other WSU departments or transferred from another institution, including following:

BME, ME, CHE, MSE or EVE 5000-7999 excluding directed study, research, or internship.

Selected classes offered by the College of Engineering:

EGR 5995	Special Topics in Engineering
Selected classes offered by Department of Computer Science:	
CSC 5825	Introduction to Machine Learning and Applications
CSC 7825	Machine Learning
Selected classes offered by Department of Industrial Engineering:	
IE 6470	Stochastic System Modeling: Queuing and Simulation
IE 7220	Advanced Statistical Methods
IE 7710	Stochastic Processes
PHY 5000-7999 excluding directed study, physics for teachers, research, and directed study, or internship.	
Selected classes offered by the Department of Mathematics:	
MAT 5600	Introduction to Analysis I
MAT 5610	Introduction to Analysis II
MAT 5710	Introduction to Stochastic Processes
MAT 5870	Methods of Optimization
MAT 7600	Real Analysis I
MAT 7610	Real Analysis II
STA 5030	Statistical Computing and Data Analysis
STA 6830	Design of Experiments
STA 6840	Applied Regression Analysis
<b>Thesis course</b>	
ECE 8999	Master's Thesis Research and Direction (This course can be taken either as a single 6-credit course during the last term in the program or as repeated courses, totaling 6 credits, during last two terms.)

<sup>1</sup> Special Topics courses ECE 5995 and ECE 7995, depending on the courses subjects, may also be counted as courses in Major Area – upon approval by Graduate Program Director.

## Plan C: Coursework

Code	Title	Credits
<b>Required courses</b>		
Select 5 ECE graduate courses in Major Area - Electrical Engineering, including at least 2 at 7000 level. <sup>1</sup>		
ECE 5100	Quantitative Physiology	
ECE 5280	Introduction to Cyber-Physical Systems	
ECE 5330	Modeling and Control of Power Electronics and Electric Vehicle Powertrains	
ECE 5340	Advanced Energy Storage Systems for Electrification of Vehicles	
ECE 5350	Alternative Energy Sources and Conversions	
ECE 5410	Power Electronics and Control	
ECE 5425	Robotic Systems I	
ECE 5430	Electric Energy Systems Engineering	
ECE 5440	Computer-Controlled Systems	
ECE 5460	Stochastic Processes in Engineering	
ECE 5470	Control Systems II	
ECE 5550	Solid State Electronics	
ECE 5560	Analysis and Design of Analog Integrated Circuits	
ECE 5575	Introduction to Micro and Nano Electro Mechanical Systems (MEMS/NEMS)	
ECE 5580	Advanced Nanoelectronics	
ECE 5620	Embedded System Design	
ECE 5650	Computer Networking and Network Programming	

ECE 5675	Sensors and Sensor Instrumentation
ECE 5680	Computer-Aided Logical Design and FPGAs
ECE 5690	Introduction to Digital Image Processing
ECE 5700	Digital Communications
ECE 5770	Digital Signal Processing
ECE 5870	Optical Communication Networks
ECE 5880	Introduction to Microwave Engineering
ECE 5960	Introduction to VLSI Systems
ECE 6180	Biomedical Instrumentation
ECE 6570	Smart Sensor Technology I: Design
ECE 7030	Mathematical Methods in Engineering I
ECE 7100	Mathematical Modeling in Impact Biomechanics
ECE 7420	Nonlinear Control Systems
ECE 7425	Robotics Systems II
ECE 7430	Discrete Event Systems with Machine Learning
ECE 7440	Dynamic Systems and Optimal Control
ECE 7530	Advanced Digital VLSI Design
ECE 7570	Smart Sensor Technology II: Characterization and Fabrication
ECE 7650	Scalable and Secure Internet Services and Architecture
ECE 7680	Advanced Digital Image Processing and Applications
ECE 7690	Fuzzy Systems
ECE 7700	Statistical Communication Theory
ECE 7730	Telematics
ECE 7850	Photonics
ECE 7860	Operation and Control of Modern Power Systems

### Elective courses

The combined number of credits for Required and Elective courses must be at least 30.

List of eligible elective courses:

ECE 5000-7999 including courses in the Electrical Engineering, or Computer Engineering major area, ECE 5990 Directed Study (1 – 3 cr., repeatable up to 3 cr.), Special Topics courses ECE 5995 and ECE 7995 (repeatable up to 12 cr.), Industrial Internship ECE 6991 (1 cr., repeatable up to 3 cr.).	
Non-ECE courses: Up to 6 credits of elective credits may be taken in other WSU departments or transferred from another institution, including following:	
BME, ME, CHE, MSE or EVE 5000-7999 excluding directed study, research, or internship.	
Selected classes offered by the College of Engineering:	
EGR 5995	Special Topics in Engineering (repeatable up to 3 cr.)
Selected classes offered by Department of Computer Science:	
CSC 5825	Introduction to Machine Learning and Applications
CSC 7825	Machine Learning
Selected classes offered by Department of Industrial Engineering:	
IE 6470	Stochastic System Modeling: Queuing and Simulation
IE 7220	Advanced Statistical Methods
IE 7710	Stochastic Processes
PHY 5000-7999 excluding directed study, physics for teachers, research, and directed study, or internship.	
Selected classes offered by Department of Mathematics:	
MAT 5600	Introduction to Analysis I

MAT 5610	Introduction to Analysis II
MAT 5710	Introduction to Stochastic Processes
MAT 5870	Methods of Optimization
MAT 7600	Real Analysis I
MAT 7610	Real Analysis II
STA 5030	Statistical Computing and Data Analysis
STA 6830	Design of Experiments
STA 6840	Applied Regression Analysis

<sup>1</sup> Special Topics courses ECE 5995 and ECE 7995, depending on the courses subjects, may also be counted as courses in Major Area – upon approval by Graduate Program Director.

## Requirements – Online Program

The online Master of Science in Electrical Engineering is offered with a concentration in Semiconductor Engineering. Semiconductor engineering focuses on developing technologies for manufacturing semiconductor devices in electronic circuits. The expertise spans from materials level research to device fabrication and chip packaging. Semiconductor technology is a critical driver of innovation in multiple industries ranging from computing, defense and automotive.

The program must be completed under Master's Degree Plan C, and it requires a minimum of thirty credits in course work. The online program also allows students to obtain six internship credits through an optional industrial internship experience. The internship activity should be in an area related to semiconductor engineering including but not limited to, design, validation, manufacturing, system integration, product development or applications.

<b>Code</b>	<b>Title</b>	<b>Credits</b>
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The coursework-only plan requires a minimum of five courses from the core group (two courses must be at the 7000-level). The 6-credit internship option requires a minimum of four courses from the core group (one course must be at the 7000-level)

Core Courses	
ECE 5550	Solid State Electronics
ECE 5580	Advanced Nanoelectronics
ECE 5575	Introduction to Micro and Nano Electro Mechanical Systems (MEMS/NEMS)
ECE 5675	Sensors and Sensor Instrumentation
ECE 5680	Computer-Aided Logical Design and FPGAs
ECE 5960	Introduction to VLSI Systems
ECE 7530	Advanced Digital VLSI Design
ECE 7566	Advanced Mixed Signal Integrated Circuits

Elective Courses	
ECE 5340	Advanced Energy Storage Systems for Electrification of Vehicles
ECE 5350	Alternative Energy Sources and Conversions
ECE 5410	Power Electronics and Control
ECE 5620	Embedded System Design
ECE 5995	Special Topics in Electrical and Computer Engineering I (Topics should be chosen in consultation with program advisor.)
ECE 7570	Smart Sensor Technology II: Characterization and Fabrication

## Electrical Engineering (Ph.D.)

Admission to these programs is contingent upon admission to the Graduate School (p. 21). Applicants must have an overall grade point average of 3.6 in a Master of Science degree program. It is possible for outstanding students to enter the Ph.D program with only a Bachelor of Science degree. All applicants whose B.S. degree is not from an ABET-accredited college or university are required to submit additional, pertinent information including GRE scores, publications and/or inventions.

Candidates for the doctoral degree must complete ninety credits beyond the bachelor's degree, including thirty credits of dissertation direction. The thirty credit dissertation registration requirement is fulfilled by registering for the courses ECE 9991 (<http://bulletins.wayne.edu/search/?P=ECE%209991>), ECE 9992 (<http://bulletins.wayne.edu/search/?P=ECE%209992>), ECE 9993 (<http://bulletins.wayne.edu/search/?P=ECE%209993>), and ECE 9994 (<http://bulletins.wayne.edu/search/?P=ECE%209994>) (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. The division of these credits includes 60 credits of pre-candidacy coursework, and 30 credits of dissertation research. Students are required to complete a preliminary exam, prospectus exam, and a public defense of a doctoral dissertation, completed with a research advisor. Students entering the program with an MS degree may transfer up to 30 credits towards pre-candidacy coursework. Details about degree requirements and course curriculum may be found on the department's website (<https://engineering.wayne.edu/ece/programs/phd.php>).

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). For additional information, students should consult the Graduate School's regulations (p. ) governing doctoral study.

# Robotics (M.S. with a major in Intelligent Control)

## Admission Requirements

Applicants must meet requirements for admission to the Graduate School (p. 24). Students must have a bachelor's degree or the equivalent in engineering from an accredited college or university. Students from all science, technology, engineering and math (STEM) disciplines will be considered for admission.

All applicants must be admitted to the Graduate School, the College of Engineering (p. 134), and a department within the college, meeting all applicable admission requirements, including a minimum grade point average of 2.75 for regular admission and 2.5 to 2.74 for qualified admission. Professional experience will be considered in admission.

## Program Requirements

The program requires students to complete a minimum of thirty credits using master's degree Plan A (24 course credits plus a 6 credit master's thesis) or Plan C (30 credits of coursework). Plan A is intended for students planning to go on to pursue a Doctoral degree. All courses must be graduate-level courses offered within the College of Engineering. The program requires applicants to *declare one of three majors*:

- **Industrial Automation**, hosted by the Engineering Technology (ET)
- **Intelligent Control**, hosted by the Electrical and Computer Engineering (ECE)
- **Smart Mobility**, hosted by the Computer Science (CSC)

The M.S. in Robotics requires competency in three foundational areas for all three majors. *A student must take one of the two courses in each of the 3 foundational areas.* In addition to fulfilling the general scholarship requirements of the Division, all course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

### Industrial Automation

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	
<b>Robot Sensing, Perception, Planning, Dynamics &amp; Control</b>		
ECE 5425	Robotic Systems I	
or MIT 5700	Industrial Robots Modeling and Simulation	
<b>Departmental Requirement</b>		<b>4</b>
ET 7430	Methods of Engineering Analysis	
<b>Electives</b>		<b>16</b>
EET 5720	Computer Networking Applications	
EET 5730	Embedded Systems Networking	
EET 7720	Advanced Computer Networking	
ET 5110	Advanced Programmable Controllers and Industrial Applications	
ET 5800	Industrial Robots Programming	
ET 5870	Engineering Project Management	

ET 7300	Advanced Battery Systems for Electric-drive Vehicles
ET 7800	Industrial Robots Dynamics and Control
MCT 5150	Hybrid Vehicle Technology
MCT 5210	Energy Sources and Conversion
MIT 5500	Machine Tool Laboratory
MIT 7700	Robotics and Flexible Manufacturing
ET 7999	Master's Project

**Total Credits** **30**

### Intelligent Control

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	
<b>Robot Sensing, Perception, Planning, Dynamics &amp; Control</b>		
ECE 5425	Robotic Systems I	
or MIT 5700	Industrial Robots Modeling and Simulation	
<b>Departmental Requirements</b>		<b>8</b>
ECE 5470	Control Systems II	
ECE 7425	Robotics Systems II	
<b>Electives</b>		<b>12</b>
ECE 5440	Computer-Controlled Systems	
ECE 5620	Embedded System Design	
ECE 6570	Smart Sensor Technology I: Design	
ECE 5690	Introduction to Digital Image Processing	
ECE 5770	Digital Signal Processing	
ECE 5960	Introduction to VLSI Systems	
ECE 7420	Nonlinear Control Systems	
ECE 7430	Discrete Event Systems with Machine Learning	
ECE 7440	Dynamic Systems and Optimal Control	
ECE 7530	Advanced Digital VLSI Design	
ECE 7690	Fuzzy Systems	
ECE 8999	Master's Thesis Research and Direction	

**Total Credits** **30**

### Smart Mobility

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	
<b>Robot Sensing, Perception, Planning, Dynamics &amp; Control</b>		
ECE 5425	Robotic Systems I	
or MIT 5700	Industrial Robots Modeling and Simulation	
<b>Department Requirement</b>		<b>3</b>
CSC 5100	Introduction to Mobility	

Electives		17
CSC 5250	Network, Distributed, and Concurrent Programming	
CSC 5270	Computer Systems Security	
CSC 5825	Introduction to Machine Learning and Applications	
CSC 5870	Computer Graphics I	
CSC 6280	Real-Time and Embedded Operating Systems	
CSC 6800	Artificial Intelligence I	
CSC 6860	Digital Image Processing and Analysis	
CSC 6870	Computer Graphics II	
CSC 7991	Advanced Topics in Computer Science *	
CSC 8990	Graduate Seminar	
CSC 8999	Master's Thesis Research and Direction	
<b>Total Credits</b>		<b>30</b>

\* CSC 7991 should be taken with the topic area, Embedded Wireless Networking for Cyber-Physical Systems. Students should consult an advisor before choosing this course as an elective.

## Engineering Technology

Office: 4855 Fourth Street; 313-577-0800

Chairperson: Ece Yaprak

<http://engineering.wayne.edu/et/>

The Division of Engineering Technology, founded in 1973, stresses the application of current technology to typical industrial problems. The curricula maintain a close relationship between theoretical principles taught in the classroom and their applications.

Engineering technology is a profession closely related to engineering. It deals with the application of knowledge and skills to industrial processes, production and management. Technologists are organizers of people, materials, and equipment for the effective planning, construction and maintenance of technical facilities and operations. Their responsibilities require technical and practical knowledge. Graduates of Wayne State's engineering technology programs are employed in such areas as manufacturing engineering, engineering production, marketing, maintenance, quality control, product testing, field engineering, consulting engineering, design, and technical supervision.

- Alternative Energy Technology (Graduate Certificate) (p. 162)
- Alternative Energy Technology (M.S.) (p. 162)
- Construction Management (M.S.) (p. 162)
- Engineering Technology (M.S.) (p. 162)
- Robotics (M.S.) (p. 163)



# Alternative Energy Technology (Graduate Certificate)

This program is designed to prepare the scientific and technological workforce for the emerging alternative energy technologies. It offers an efficient way to obtain a certified level of training, especially for working engineers and researchers. It may be taken as a free-standing program or concurrently with a master's degree program.

Admission to this program is contingent upon admission to the Graduate School (p. 21). The program will be open to students with a Bachelor's degree in engineering, chemistry, and physics, and in other mathematics-based sciences in exceptional cases.

The Alternative Energy Technology Graduate Certificate requires a minimum of twelve credits. The core course, AET 5120, is required, and a maximum of four credits is allowed in Research or Directed Studies. Certification procedures in place in WSU's Graduate School will be followed and students must earn a cumulative g.p.a. of at least a 3.0. Should a student become interested later in pursuing the master's degree after completing the graduate certificate, up to nine of the twelve certificate credits can be transferred toward the master's degree. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## Alternative Energy Technology (M.S.)

The Master of Science program is open to students with a bachelor's degree in engineering, and in other mathematics-based sciences in exceptional cases. Admission to this program is contingent upon admission to the Graduate School (p. 21). Grade Point Average for regular admission to M.S. Degree Program is 3.0 or above. Qualified admission is possible for applicants with a grade point average of 2.5 - 3.0 if the applicant has significant professional experience. No other specific admission requirements are needed, however, letters of recommendation, statement of objectives, and Graduate Record Examination (GRE) scores are encouraged to aid the admission evaluation process.

This Master of Science degree is offered under the following options:

**Plan A:** Thirty-two credits, including an eight-credit thesis.

**Plan C:** Thirty-two credits of course work in an approved AET Plan of Work.

Requirements for both options include at least twenty-four credits in Alternative Energy Technology courses and at least eight credits of 7000-level course work. The 7000-level course requirements can be satisfied through directed study, directed research, or thesis credits or approved classes from other engineering departments. Both options require two core courses: AET 5110 and AET 5120. Students pursuing Plan A are excluded from Research (AET 8996) and Directed Study (AET 7990) credits. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## Construction Management (M.S.)

The master's degree in construction management is designed to meet the needs of adults who wish to expand or upgrade their knowledge within the areas of their previous training or current profession related to construction management. It provides management and technical aspects of the construction industry. It is offered in both the traditional and online format.

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the College of Engineering (p. 134).

This Master of Science in Construction Management can be completed fully online or in the traditional, in-person format.

The degree will be offered under the following option:

**Plan C (Coursework):** Thirty credits of coursework in an approved Plan of Work, including 15 credits of required courses and 15 credits of elective courses. Students in the traditional, in-person program may apply a maximum of 6 credits of Graduate Industrial Internship toward elective course requirements.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

Code	Title	Credits
<b>Required Courses</b>		
CMT 5060	Planning and Scheduling	3
CMT 5080	Construction Management Law	3
CMT 7020	Construction Safety Management	3
CMT 7030	Building Information Modeling	3
CMT 7070	Construction Cost Estimating	3
<b>Elective Courses</b>		
Select 15 credits from the following:		15
CMT 5030	Facilities and Management Principles	
CMT 5070	Mechanical and Electrical Systems in Buildings	
CMT 7040	Lean Construction Management	
CMT 7050	VR Technologies in Construction Management	
CMT 7060	Risk Management in Construction	
ET 5500	Graduate Industrial Internship (Open only to students in the traditional, in-person program)	
ET 5870	Engineering Project Management	
<b>Total Credits</b>		<b>30</b>

## Engineering Technology (M.S.)

The Master of Science in Engineering Technology (M.S.E.T.) program is designed to meet the needs of adults who wish to expand or upgrade their knowledge within the areas of their previous training or current profession. It provides for highly individualized graduate study, and is designed to promote greater depth of understanding in a field of specialization beyond the bachelor's level. It allows more advanced coverage in specialized topics, develops more rigorous analytical skills, helps to advance expertise, and prepares graduates to perform more sophisticated and independent work.

## Admission Requirements and Student Selection Procedures

Admission to the M.S.E.T. degree program is contingent upon admission to the Graduate School (p. 21). Additionally, all applicants must:

1. Hold a bachelor's degree in engineering technology or a related discipline from a college or university of recognized standing, or the equivalent;
2. Have maintained at least a 'B' average (3.0 g.p.a.) in undergraduate coursework;
3. Provide at least two letters of recommendation from persons acquainted with the applicant's academic achievement at the institution most recently attended (applicants whose academic

references date back more than five years may substitute other references, if desired);

4. Submit with his/her application a preliminary proposal for the intended plan of study which includes a general set of objectives and an outline of types of coursework or other educational projects to be pursued;
5. Applicants who do not meet the 3.0 g.p.a. requirement but whose g.p.a. does fall within the Graduate School's qualified admission span (2.5 to 2.9 g.p.a.) may be admitted with a conditional status. Immediately upon successful completion of two graduate-level courses with a grade of 'B' or above, the candidate must request in writing that his/her status be changed to regular status.
6. Students will be required to submit a finalized Plan of Work, listing all the courses the student intends to take to fulfill the degree requirements. The Plan must be developed with the aid of the student's faculty advisor and is generally submitted by the time the student has earned eight credits.

## Program Requirements

The Master of Science in Engineering Technology degree is offered under the following options:

**PLAN B:** A minimum of thirty credits in graduate-level (numbered 5000 and above) course work, including a four- to six-credit Master's Project (ET 7999).

**PLAN C:** A minimum of thirty credits of graduate level course work (numbered 5000 and above).

For either plan, students must complete the core requirement, ET 7430. A minimum grade of 'B' is required in this core course, and the grade of 'F' grade is not acceptable in any course. In addition to fulfilling the general scholarship requirements of the Division, all course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

**Master's Project:** ET 7999 integrates the knowledge gained in coursework, laboratory studies, and prior work experience to provide a focused activity demonstrating the student's ability to perform master's-level work. The master's project should include elements of design, synthesis, fabrication, modeling and simulation, CAD/CAM, and empirical and theoretical analysis balanced in a manner appropriate to the student's specific project.

A member of the Division of Engineering Technology faculty holding a graduate faculty appointment chairs the student's Master's Project Advisory Committee. (Individuals outside the Division directing master's project research must hold an adjunct graduate faculty appointment.) An adjunct graduate faculty member may co-chair the Committee. Using the form provided by the Division, the student must submit a proposal indicating the scope of the project, the problem to be solved, the nature of the system to be studied, the plan of approach and work plan for the activity, facilities and resources to be employed, and the student's qualifications for performing this work. The Master's Project Advisory Committee may accept, decline, or request resubmission of the proposal as explained to the student.

Only students with accepted proposals are allowed to register for ET 7999. Requests to elect additional credits in ET 7999 beyond those originally allowed by the Master's Project Advisory Committee must also be approved by the Committee.

**Residency Requirement:** Of the required credits for the M.S.E.T. degree, a minimum of eighteen must be Division of Engineering Technology courses. A maximum of eight transfer credits may be allowed for graduate courses taken at other accredited institutions, if they are

appropriate to the student's plan of study. Up to eight credits in graduate courses completed at Wayne State as a non-degree graduate student may be applied toward degree requirements and must be included in the applicant's preliminary Plan of Work. Minimum completion period for the degree is three semesters.

## Robotics (M.S. with a major in Industrial Automation) Admission Requirements

Applicants must meet requirements for admission to the Graduate School (p. 24). Students must have a bachelor's degree or the equivalent in engineering from an accredited college or university. Students from all science, technology, engineering and math (STEM) disciplines will be considered for admission.

All applicants must be admitted to the Graduate School, the College of Engineering (p. 134), and a department within the college, meeting all applicable admission requirements, including a minimum grade point average of 2.75 for regular admission and 2.5 to 2.74 for qualified admission. Professional experience will be considered in admission.

## Program Requirements

The program requires students to complete a minimum of thirty credits using master's degree Plan A (24 course credits plus a 6 credit master's thesis) or Plan C (30 credits of coursework). Plan A is intended for students planning to go on to pursue a Doctoral degree. All courses must be graduate-level courses offered within the College of Engineering. The program requires applicants to *declare one of three majors*:

- **Industrial Automation**, hosted by the Engineering Technology (ET)
- **Intelligent Control**, hosted by the Electrical and Computer Engineering (ECE)
- **Smart Mobility**, hosted by the Computer Science (CSC)

The M.S. in Robotics requires competency in three foundational areas for all three majors. *A student must take one of the two courses in each of the 3 foundational areas.* In addition to fulfilling the general scholarship requirements of the Division, all course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## Industrial Automation

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	
<b>Robot Sensing, Perception, Planning, Dynamics &amp; Control</b>		
ECE 5425	Robotic Systems I	
or MIT 5700	Industrial Robots Modeling and Simulation	
<b>Departmental Requirement</b>		<b>4</b>
ET 7430	Methods of Engineering Analysis	
<b>Electives</b>		<b>16</b>
EET 5720	Computer Networking Applications	
EET 5730	Embedded Systems Networking	

EET 7720	Advanced Computer Networking	
ET 5110	Advanced Programmable Controllers and Industrial Applications	
ET 5800	Industrial Robots Programming	
ET 5870	Engineering Project Management	
ET 7300	Advanced Battery Systems for Electric-drive Vehicles	
ET 7800	Industrial Robots Dynamics and Control	
MCT 5150	Hybrid Vehicle Technology	
MCT 5210	Energy Sources and Conversion	
MIT 5500	Machine Tool Laboratory	
MIT 7700	Robotics and Flexible Manufacturing	
ET 7999	Master's Project	
<b>Total Credits</b>		<b>30</b>

## Intelligent Control

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	
<b>Robot Sensing, Perception, Planning, Dynamics &amp; Control</b>		
ECE 5425	Robotic Systems I	
or MIT 5700	Industrial Robots Modeling and Simulation	
<b>Departmental Requirements</b>		<b>8</b>
ECE 5470	Control Systems II	
ECE 7425	Robotics Systems II	
<b>Electives</b>		<b>12</b>
ECE 5440	Computer-Controlled Systems	
ECE 5620	Embedded System Design	
ECE 6570	Smart Sensor Technology I: Design	
ECE 5690	Introduction to Digital Image Processing	
ECE 5770	Digital Signal Processing	
ECE 5960	Introduction to VLSI Systems	
ECE 7420	Nonlinear Control Systems	
ECE 7430	Discrete Event Systems with Machine Learning	
ECE 7440	Dynamic Systems and Optimal Control	
ECE 7530	Advanced Digital VLSI Design	
ECE 7690	Fuzzy Systems	
ECE 8999	Master's Thesis Research and Direction	
<b>Total Credits</b>		<b>30</b>

## Smart Mobility

Code	Title	Credits
<b>Foundational Areas (Please select one course from each area)</b>		<b>10</b>
<b>Robot Software &amp; Programming</b>		
CSC 6110	Software Engineering	
or ET 5600	Python: Industrial Applications	
<b>Robot Architectures</b>		
CSC/ECE 5280	Introduction to Cyber-Physical Systems	
or ET 5100	Fundamentals of Mechatronics and Industrial Applications	

Robot Sensing, Perception, Planning, Dynamics & Control	
ECE 5425	Robotic Systems I
or MIT 5700	Industrial Robots Modeling and Simulation
Department Requirement	3
CSC 5100	Introduction to Mobility
Electives	17
CSC 5250	Network, Distributed, and Concurrent Programming
CSC 5270	Computer Systems Security
CSC 5825	Introduction to Machine Learning and Applications
CSC 5870	Computer Graphics I
CSC 6280	Real-Time and Embedded Operating Systems
CSC 6800	Artificial Intelligence I
CSC 6860	Digital Image Processing and Analysis
CSC 6870	Computer Graphics II
CSC 7991	Advanced Topics in Computer Science *
CSC 8990	Graduate Seminar
CSC 8999	Master's Thesis Research and Direction
Total Credits	30

\* CSC 7991 should be taken with the topic area, Embedded Wireless Networking for Cyber-Physical Systems. Students should consult an advisor before choosing this course as an elective.

## Online Program

The Online Master's of Science in Robotics-Industrial Automation Program is designed to promote greater depth of understanding in Robotics with an emphasis on Industrial Automation. The Program facilitates advanced coverage in specialized topics and develops rigorous analytical skills preparing graduates to advance their expertise and perform more sophisticated and independent work.

This Master of Science degree is offered under the following option:

**Plan C (Coursework):** The proposed degree will require the completion of a minimum of thirty credits of course work (14 required + 16 elective credits within the Division). Some students can also take advantage of two 3-credit hours of internship credit (14 required+6 internship+10 elective credits). The degree can be completed in one year (2 semesters and a summer).

Code	Title	Credits
<b>Required courses</b>		
ET 7430	Methods of Engineering Analysis	4
ET 5600	Python: Industrial Applications	3
ET 5100	Fundamentals of Mechatronics and Industrial Applications	3
MIT 5700	Industrial Robots Modeling and Simulation	4
<b>Elective courses</b>		
Select 16 credits from the following:		16
ET 5110	Advanced Programmable Controllers and Industrial Applications	
ET 5800	Industrial Robots Programming	
ET 5870	Engineering Project Management	
ET 7300	Advanced Battery Systems for Electric-drive Vehicles	
EET 5720	Computer Networking Applications	
MIT 7700	Robotics and Flexible Manufacturing	
MCT 5210	Energy Sources and Conversion	

MCT 5150	Hybrid Vehicle Technology
ET 5995	Special Topics in Engineering Technology I (Topics should be chosen in consultation with an advisor.)
ET 5500	Graduate Industrial Internship
<b>Total Credits</b>	

30

# Industrial and Systems Engineering

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Chairperson: Ratna Babu Chinnam

<https://engineering.wayne.edu/industrial-systems> (<https://engineering.wayne.edu/industrial-systems/>)

*Industrial Engineering* is a broadly-based integrated field concerned with enabling complex systems to function effectively. Managing the inventory of a production facility, for example, involves issues of production and stocking policy, manufacturing equipment, human resources, customer demand, and supplier relationships. The industrial engineer must understand the interaction of the components of a system, and coordinate the flow of materials and information to effectively manage the operation. He/she plays an important role in defining information needs and developing strategies for improving decision making in existing systems. The skills of the industrial engineer, however, can be applied in more than just the traditional production environment. In the growing service sector of the economy including health care delivery, public safety, air transportation, energy, and banking issues of resource management, scheduling, quality of service, and systems design are of increasing importance.

*Manufacturing Systems Engineering* was traditionally involved in developing process capabilities to realize the output of design engineering. Today, design and manufacturing systems engineering is becoming reciprocally integrated and both groups work together in teams to assure the soundness of design and producibility of goods and services. The manufacturing systems engineer must have an understanding of the design process as well as special expertise in the knowledge and understanding of the production process, which is now computer-based and provides flexibility through numerical control. The manufacturing systems engineer is responsible for designing and implementing the cells and production lines which become the basic units of manufacture. Increasingly, such production units are becoming parts of an integrated factory system, and are not simply islands of automation. The manufacturing systems engineer must understand the multi-layered control architecture of the integrated factory, and the computer-based technologies which enable it.

*Engineering Management* has grown in importance as today's engineer must possess the necessary tools for effective technical management. Inherent in successful leadership is an understanding of the business functions of an organization, tools used in the decision-making process, and skills for efficient project management, among others. An effective engineering manager will utilize industrial engineering skills to develop strategies that improve the product development process, manage quality and productivity, and advance techniques in world-class manufacturing. More often, a business overview is critical to developing and improving these processes.

*Systems Engineering* is an interdisciplinary approach and means to enable the realization of successful systems. It focuses on defining customer needs and required functionality early in the development cycle, documenting requirements, then proceeding with design synthesis and system validation while considering the complete problem.

*Data Science & Business Analytics* is an interdisciplinary program with Computer Science and Mike Ilitch School of Business that is designed to provide a broad range of data science and analytics knowledge and skills. This fast growing field is quickly becoming a key facet of business strategy with increasing need for employees who can think uniquely across disciplines to transform data into relevant insights for making better decisions.



*Facilities:* The Department maintains laboratories in systems simulation, computer-aided manufacturing, smart engineering systems, big data, design, and concurrent engineering.

*Master's Degree Programs* of this department offer the flexibility of full or part-time study. Most of the courses are offered in the evening, allowing students to continue full-time employment in local industries. Some program classes are offered at off-campus sites. Many of the graduate-level courses are also offered in the evening, allowing graduate students also to continue full-time employment in local industries. To further accommodate the working student population, several engineering courses are offered online (refer to the schedule of classes to determine availability).

**All incoming M.S. students** must demonstrate competency in undergraduate probability and statistics, through successful completion of BE 2100, or equivalent courses. If the student fails to show competency, he or she may be required to complete a pre-requisite course in probability and statistics.

- Industrial Engineering (M.S.) (p. 169)
- Systems Engineering (M.S. Online) (p. 174)
- Manufacturing Engineering (M.S.) (p. 172)
- Engineering Management (M.S.) (p. 168)
- Data Science & Business Analytics (M.S.) (p. 167)
- Artificial Intelligence (M.S.) (p. 166)
- Industrial Engineering (Ph.D.) (p. 171)
- Systems Engineering (Bridge Graduate Certificate) (p. 174)

## Artificial Intelligence (M.S. with a major in Industrial AI)

Artificial Intelligence (AI) is an area of study that explores how to endow machines with the ability to learn, make decisions, reason about data, and communicate with humans. In the Wayne State University's Master of Science in Artificial Intelligence (MSAI) program, students learn to apply problem-solving, creative thinking, algorithmic design, and computer programming skills to build modern AI systems.

Students will gain deep technical training and expertise in a selected concentration area, which include AI Hardware and Systems, AI Algorithm and Systems, and Industrial AI. The program prepares students to (1) work as engineers, consultants and entrepreneurs in industries where AI can provide a competitive edge, or (2) pursue a Ph.D. degree in computer science, electrical engineering, industrial and systems engineering, or other related fields.

Applicants must meet requirements for admission to the Graduate School (p. 21). Students must have a bachelor's degree or the equivalent in Engineering from an accredited college or university. Students from all science, technology, engineering, and math (STEM) disciplines will be considered for admission.

The proposed program requires 30 credits for graduation, either Plan A (24 credits of coursework plus 6 credits of master's thesis) or Plan C (30 credits of coursework). All courses must be graduate-level courses offered within the College of Engineering. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

A minimum grade point average of 3.00 for the MSAI program is required to obtain the master's degree. A maximum of one course in which a C has been received may be used to meet graduation requirements, provided this is offset by sufficient A grades to maintain the required 3.00 average.

The co-advisor for each major, in working with students to develop their academic plan, will determine which electives are appropriate for their major.

## AI Hardware and Systems Major

*Hosted by the Electrical and Computer Engineering (ECE) department.*

### Degree Requirements

- 9 credit hours from AI Hardware and Systems core
- 3 credit hours from AI Algorithms and Systems core
- 3 credit hours from Industrial AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from AI Hardware and Systems electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from AI Hardware and Systems electives
- Plan A: 6 credit hours of ECE 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
ECE 5995	Special Topics in Electrical and Computer Engineering I *	3
ECE 7500	Artificial Intelligence for Natural Language Processing	3
ECE 7640	Online and Adaptive Methods for Machine Learning	3
<b>Elective courses</b>		
ECE 5560	Analysis and Design of Analog Integrated Circuits	3
ECE 5770	Digital Signal Processing	4
ECE 5995	Special Topics in Electrical and Computer Engineering I *	3
ECE 5690	Introduction to Digital Image Processing	4
ECE 7430	Discrete Event Systems with Machine Learning	4
ECE 7680	Advanced Digital Image Processing and Applications	4
ECE 7995	Special Topics in Electrical and Computer Engineering II *	3

\* Contact an advisor for specific topics that can apply to the AI Hardware and Systems major.

## AI Algorithms and Systems Major

*Hosted by the Computer Science (CSC) department.*

### Degree Requirements

- 9 credit hours from AI Algorithms and Systems core
- 3 credit hours from AI Hardware and Systems core
- 3 credit hours from Industrial AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from AI Algorithms and Systems electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from AI Algorithms and Systems electives
- Plan A: 6 credit hours of CSC 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
CSC 5825	Introduction to Machine Learning and Applications	3
CSC 6800	Artificial Intelligence I	3
CSC 7760	Deep Learning	3
<b>Elective courses</b>		



CSC 5100	Introduction to Mobility	3
CSC 5272	Principles of Cyber Security	3
CSC 5280	Introduction to Cyber-Physical Systems	3
CSC 5430 & CSC 5431	Game Programming and Design I and Game Programming and Design I: Lab	4
CSC 5710	Design of Intelligent Information Retrieval Systems	3
CSC 5800	Intelligent Systems: Algorithms and Tools	3
CSC 5870	Computer Graphics I	3
CSC 5991	Special Topics in Computer Science **	3
CSC 6430 & CSC 6431	Game Programming and Design II and Game Programming and Design II: Lab	4
CSC 6710	Database Management Systems I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 7710	Database Management Systems II	3
CSC 7800	Artificial Intelligence II	3
CSC 7810	Data Mining: Algorithms and Applications	3
CSC 7825	Machine Learning	3
CSC 7991	Advanced Topics in Computer Science (Not repeatable) **	3

\*\* Contact an advisor for specific topics that can apply to the AI Algorithms and Systems major.

## Industrial AI Major

*Hosted by the Department of Industrial & Systems Engineering (ISE).*

### Degree Requirements

- 9 credit hours from Industrial AI core
- 3 credit hours from AI Hardware and Systems core
- 3 credit hours from AI Algorithms and Systems AI core
- Plan A: 9 credit hours from AI Program electives, including at least 6 credit hours from Industrial AI electives, or
- Plan C: 15 credit hours from AI Program electives, including at least 12 credit hours from Industrial AI electives
- Plan A: 6 credit hours of IE 8999 master's thesis

Code	Title	Credits
<b>Core courses</b>		
IE 6010	IoT and Edge AI Programming	3
IE 7860	Intelligent Analytics	3
DSA 6100	Statistical Learning for Data Science and Analytics	3
<b>Elective courses</b>		
DSA 6000	Data Science and Analytics	3
DSA 6200	Operations Research	3
IE 5995	Special Topics in Industrial Engineering ***	3
IE 6000	Digital Automation	3
IE 6040	Simulation in Robotics Using ROS	3
IE 7220	Advanced Statistical Methods	3
IE 7445	Manufacturing Analytics	3
IE 7480	Knowledge-Based Design	3
IE 7521	Large Scale Optimization and Integer Programming	3
IE 7995	Graduate Special Topics ***	3

\*\*\* Contact an advisor for specific topics that can apply to the Industrial AI major.

## Advanced Analytics (M.S. in Data Science and Business Analytics)

Analytics is a fast-growing STEM field with a high demand for individuals who possess the skills and expertise necessary to navigate the process of transforming data into insight for making sound business decisions. It's the reason that the WSU College of Engineering and the Mike Ilitch School of Business launched an innovative and interdisciplinary new master's program in data science and business analytics. Leaders in this field use data to fundamentally rethink all facets of business in many sectors, including manufacturing, supply chain, finance, and healthcare.

### Admission Requirements

Admission to any graduate program is contingent upon admission to the Graduate School (p. 21). Applicants should have 3.0 or higher cumulative undergraduate g.p.a.

### Prerequisite Knowledge

Candidates are expected to well-versed in basic probability and statistics and also familiar with some programming language. Courses will be available in the summer months for admitted applicants to refresh their knowledge or makeup for any deficiency in this knowledge.

Students without this prerequisite knowledge but otherwise possess good credentials will be given conditional admission and have to take this remedial coursework in the summer months prior to starting the program in the fall term

### Graduate Management Admission Test (GMAT) and Graduate Record Examination (GRE)

Applicants must complete the GRE or the GMAT with minimum scores in the top 75 percentile.

### Program Requirements

Students must complete a total of 30 credits in order to earn the M.S. in Data Science and Business Analytics with a major in Advanced Analytics.

The interdisciplinary core includes 9 credits of coursework across business, computer science, and industrial engineering. On top of this integrated breadth of study covering the core areas of data science and business analytics, each student has 9 credits of major courses to give them depth in an engineering, business, or analytics area. Each student's 6 credits of elective choices can be personalized to support their individual career goals. The final piece of the curriculum is a 6-credit applied analytics practicum, in which students will work with companies and organizations on real analytics problems. All course work must be completed in accordance with the regulations of the Graduate School and the College of Engineering.

Code	Title	Credits
<b>Module 1: Core Courses</b>		
DSB 6000	Data Science Strategy & Leadership	3
DSA 6000	Data Science and Analytics	3
DSE 6000	Computing Platforms for Data Science	3
<b>Module 2: Major Courses</b>		
Choose two courses from the following list:		6
CSC 5825	Introduction to Machine Learning and Applications	
CSC 7760	Deep Learning	
CSC 7810	Data Mining: Algorithms and Applications	
IE 7860	Intelligent Analytics	
Choose one course from the following list:		3

DSA 6100	Statistical Learning for Data Science and Analytics
DSA 6200	Operations Research
DSA 6300	Decision Analysis and Simulation

#### Module 3: Electives

Elective courses can come from other tracks of the Data Science & Business Analytics program or from outside the program. (See the list of approved electives below.)

#### Module 4: Applied Analytics Practicum 6

DSA 7500	Data Science and Analytics Practicum
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### Electives

Code	Title	Credits
ACC 7148	ERP Systems and Business Integration	3
ACC 7280	Accounting Data Analytics	3
ACC/TIS 7290	Blockchain: An Accounting and Business Perspective	3
CSC 5050	Algorithms and Data Structures	3
CSC 5220	Fundamentals of Software Testing	3
CSC 6800	Artificial Intelligence I	3
CSC 6860	Digital Image Processing and Analysis	3
CSC 7220	Parallel Computing II: Algorithms and Applications	3
CSC 7260	Distributed Systems	3
CSC 7300	Bioinformatics I: Biological Databases and Data Analysis	3
CSC 7301	Bioinformatics I: Programming Lab	1
ECE 7610	Advanced Parallel and Distributed Systems	3
ECO 7100	Econometrics I	4
ECO 7110	Econometrics II	4
ECO 7120	Econometrics III	4
IE 6010	IoT and Edge AI Programming	3
IE 6325	Supply Chain Management	3
IE 6720	Engineering Risk and Decision Analysis	3
IE 7860	Intelligent Analytics	3
STA 5830	Applied Time Series	3
STA 6840	Applied Regression Analysis	3
TIS 7505	Information Analytics: Inbound Information Technology	3
TIS 7510	Database Management	3
TIS 7570	Advanced Business Analytics	3
TIS 7994	Digital Content Development	3
TIS 7996	Principles for Customer Relationship Management	3

## Engineering Management (M.S.)

The department offers two options for a Master of Science in Engineering Management (EMMP). Students should read both sections carefully to determine which program they are eligible for.

### On-campus Program

The on-campus Master of Science in Engineering Management program is designed to build both technical competence and business acumen. The program builds understanding and skills critical to the support of fast-to-market strategies, which also guarantee product quality, and cost minimization. A systematic analytical framework is developed and coupled with tools for managing the engineering and technical functions within manufacturing-based companies. This cross-disciplinary program draws from the expertise of the College of Engineering and the School of Business Administration.

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

**Recommended Work Experience:** This program is designed to enrich the learning journey by integrating students' professional backgrounds. While we highly encourage applicants to possess two years of full-time work experience and/or significant internship/co-op/research experiences, it is not a mandatory requirement for admission.

### On-site Program (Automotive Supplier)

The on-site (automotive supplier) Master of Science in Engineering Management program is limited to working professionals at organizations with a partnership agreement with the Department of Industrial and Systems Engineering. Engineers with high potential are selected by management to participate in a three-year, two-evenings-per-week curriculum. The courses are team based, and include two years of class studies and team projects in areas such as leadership, quality management, global marketing, robust design, and information systems. The final year of the program involves a team capstone project, which provides application of the knowledge gained to a current strategy or opportunity within their organization.

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21) and is limited to management selected individuals from partner organizations. For more information on admission or becoming a partner organization, please contact the EMMP program chair.

### On-site Program (Automotive Supplier)

**Plan B:** Thirty-nine credits including a six to nine credit final project. There are four core segments: engineering management, business cognate, engineering cognate, and capstone project. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

### On-campus Program

The on-campus program requires a minimum thirty-six credits. To register for business courses, students should speak to a graduate advisor (<https://engineering.wayne.edu/resources/students/advising/#graduate>) about enrolling in the Graduate Certificate in Business (p. 86). All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). Up to six additional credits may be earned in courses outside the Industrial and Systems Engineering Department, and require approval of the graduate advisor.

See below for a list of IE Electives (p. 169) and a list of recommended Business Electives (p. 169).

**Note:** M.S. students pursuing IE 6991 Industrial Internship for curriculum practical training (CPT) may use a maximum of six IE 6991 credits towards the M.S in Engineering Management degree requirements. Except in specific cases, IE 6991 must be taken in 2 credit blocks. IE 6991 credits will substitute for and replace the equivalent number of elective course credits. Total thesis credits and IE 6991 credits cannot exceed the total number of elective course credits.

### Plan A - Thesis

Code	Title	Credits
<b>Required Industrial Engineering Courses</b>		
IE 6310	Lean Operations and Manufacturing	3
IE 6560	Deterministic Optimization	3

IE 6840	Project Management	3
IE 6720	Engineering Risk and Decision Analysis	3
IE 6830	Management of Technology Change	3
or BA 7040	Managing Organizational Behavior	
(At least) One course of the following:		3
IE 6240	Quality Management Systems	
IE 6611	Fundamentals of Six Sigma	

#### Required Business Courses

Select 3 from the following courses: 7-8

BA 6000	Introduction to Accounting and Financial Reporting
BA 6005	Basics of Financial Management
BA 6015	Marketing Foundations
BA 6020	Contemporary Principles of Management

#### Elective Courses

**Plan A - Thesis requires six to eight thesis credits (IE 8999). These thesis credits will substitute for, and replace, the equivalent number of credits of the elective courses. To register for ISE thesis credits, students must submit the thesis credit registration approval form to their appropriate M.S. program chair or graduate advisor.**

Select 7-8 credits of IE Elective Courses 7-8

Select 8 credits if core Business Course credits is 7. Otherwise, select 7 credits of IE elective courses.

Select 3 Credits of IE or Business Elective Courses 3

### Plan C - Coursework

Code	Title	Credits
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#### Required Industrial Engineering Courses

IE 6310	Lean Operations and Manufacturing	3
IE 6560	Deterministic Optimization	3
IE 6840	Project Management	3
IE 6720	Engineering Risk and Decision Analysis	3
IE 6830	Management of Technology Change	3
or BA 7040	Managing Organizational Behavior	

(At least) One course of the following: 3

IE 6240	Quality Management Systems
IE 6611	Fundamentals of Six Sigma

#### Required Business Courses

Select 3 from the following courses: 7-8

BA 6000	Introduction to Accounting and Financial Reporting
BA 6005	Basics of Financial Management
BA 6015	Marketing Foundations
BA 6020	Contemporary Principles of Management

#### Electives

Select one of the following elective options: 10-11

#### OPTION 1: Elective Courses

7-8 Credits of IE Elective Courses

- Select 8 credits if core Business Course credit is 7. Otherwise, select 7 credits of IE elective courses.

3 Credits of IE or Business Elective Courses

#### OPTION 2: Project at Your Company plus Electives

1-2 Credits of IE Elective Courses

- Select 2 credits if core Business Course credit is 7. Otherwise, select 1 credits of IE elective courses.

3 Credits of IE or Business Elective Courses

IE 7999	Engineering Management Leadership Project (6 credits)
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### Recommend IE Electives in Manufacturing and/or Product Design

Code	Title	Credits
IE 6125	Human Factors Engineering	3
IE 6210	Applied Engineering Statistics	3
IE 6220	Value Engineering	3
IE 6255	Quality Engineering	3
IE 6270	Engineering Experimental Design	3
IE 6275	Reliability Estimation	3
IE 6325	Supply Chain Management	3
IE 6405	Integrated Product Development	3
IE 6420	CAD/CAM	3
IE 6422	Flexible Manufacturing Systems	3
IE 6425	Product Lifecycle Management and Sustainable Design	3
IE 6430	Computer Simulation Methods	3
IE 6442	Facilities Design and Materials Flow	3
IE 6510	Information Systems for the Manufacturing Enterprise	3
IE 6850	Manufacturing Strategies	3
IE 7811	Data Mining: Algorithms and Applications	3
IE 7990	Directed Study	1-2
SYE 6490	Introduction to Systems Engineering in Design	3

### Business Electives (with Permission)

Code	Title	Credits
BA 7050	Marketing Strategy	3
BA 7020	Corporate Financial Management	3
BA 7040	Managing Organizational Behavior	3
BA 7000	Managerial Accounting	3

## Industrial Engineering (M.S.)

The M.S. program in industrial engineering is built on a core designed to provide breadth of experience in systems modeling, analysis, and applications common in industrial engineering and operations analysis.

## Program Objectives

Graduates will be able to:

1. Integrate, model, continuously improve, control, and if necessary redesign, enterprise activities
2. Perform data analysis and optimization for enterprise decision making
3. Develop business cases for justifying process, organizational and technological projects
4. Support enterprise performance, quality, efficiency and productivity enhancement activities
5. Facilitate systems engineering and project management
6. Communicate effectively (written, verbal and presentation) across all levels in the enterprise
7. Develop an ability to grow through life long acquisition of knowledge

Students must achieve at least a 'B' (3.0) grade point average and achieve 'B' or greater in ISE M.S. core courses. A limited number of grades below 'B' and 'B-', though unsatisfactory for graduate level work, may be applied

toward a graduate degree provided they are offset by a sufficient number of higher grades to maintain a grade point average of 3.0. Unsatisfactory grades can constitute reason for dismissal from the MSIE program at the department or program's discretion.

## Admission Requirements

Admission to ISE M.S. programs is contingent upon admission to the Graduate School (<http://wayne.edu/apply/#fndtn-graduate>). The M.S. in Industrial Engineering program requires a baccalaureate degree in engineering and an approximate 2.8 GPA or equivalent in upper division undergraduate courses. Conditions to admission or prerequisites may be assigned in the admissions process. The GRE is NOT required, however, high GRE scores will be considered in application evaluation. Students with degrees in related disciplines with a strong analytical base are also considered. Applicants whose undergraduate education is deficient in prerequisites for graduate classes may be required to take background courses that will NOT count toward the 30-credit degree requirement.

Applicants can provide supplemental materials such as resume, personal statement, GRE scores, and letters of recommendation to support their application.

Prospective students should contact M.S. Industrial Engineering Program Chair Dr. Jeremy Rickli (<https://engineering.wayne.edu/profile/fm9822/>) for program information or Graduate Program Coordinator Beth Madigan (<https://engineering.wayne.edu/profile/bb4879/>) for admissions and application concerns.

The Master of Science in Industrial Engineering is offered under the following options: Plan A (thesis option) and Plan C (coursework option). Students must achieve a minimum of a B grade in each core course.

## Plan A - Thesis

Minimum thirty credits including six to eight thesis credits. If a thesis option (Plan A) is selected, six to eight credits of Master's Thesis Research and Direction (IE 8999) is required. Student pursuing Plan A must take nine credits of IE core courses and design an individual program of study that must be approved by both the thesis research advisor and the appropriate MS program chair or graduate advisor. To register for ISE thesis credits, students must submit the thesis credit registration approval form to their appropriate MS program chair or graduate advisor. Up to two courses (six to eight credits) may be earned in courses outside the Industrial and Systems Engineering Department, but require approval by the appropriate MS program chair or graduate advisor. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

**Note:** M.S. student pursuing IE 6991 Industrial Internship for curriculum practical training (CPT) may use a maximum of 6 IE 6991 credits towards the M.S in Industrial Engineering degree requirements. Except in specific cases, IE 6991 must be taken in 2 credit blocks.

### Course Requirements

Code	Title	Credits
IE core course requirement (9 credits)		
IE 6210	Applied Engineering Statistics	
IE 6560	Deterministic Optimization	
IE 6315	Production and Service Systems	
Thesis credit requirement (6-8 credits)		
IE 8999	Master's Thesis Research and Direction	
Electives: 13-15 credits		

## Plan C - Coursework

Minimum thirty credits of course work. Plan C requires nine credits of IE core for the general option and nine credits of IE core if a concentration is pursued. While ISE core courses provide fundamental IE knowledge, depth within a specific IE field can be acquired by completing an MS IE concentration in Lean Systems, Analytics, or Systems Engineering. Students interested in an area not among the concentrations listed should elect the general option. Up to two courses (six to eight credits) may be earned in courses outside the Industrial and Systems Engineering Department, but require approval by the appropriate MS program chair or graduate advisor. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

**Note:** M.S. student pursuing IE 6991 Industrial Internship for curriculum practical training (CPT) may use a maximum of 6 IE 6991 credits towards the M.S in Manufacturing Engineering degree requirements. Except in specific cases, IE 6991 must be taken in 2 credit blocks.

### General Option

Code	Title	Credits
IE core course requirement (9 credits)		
IE 6210	Applied Engineering Statistics	
IE 6560	Deterministic Optimization	
IE 6315	Production and Service Systems	
Electives: 21 credits		

### Lean Systems

Code	Title	Credits
IE core course requirement (9 credits)		
IE 6210	Applied Engineering Statistics	
IE 6560	Deterministic Optimization	
IE 6315	Production and Service Systems	
Concentration course requirement (9 credits)		
IE 6310	Lean Operations and Manufacturing (REQUIRED)	
IE 6220	Value Engineering	
IE 6255	Quality Engineering	
IE 6325	Supply Chain Management	
IE 6422	Flexible Manufacturing Systems	
IE 6430	Computer Simulation Methods	
IE 6442	Facilities Design and Materials Flow	
IE 6470	Stochastic System Modeling: Queuing and Simulation	
IE 6611	Fundamentals of Six Sigma	
Electives: 12 credits		

### Analytics

Code	Title	Credits
IE core course requirement (9 credits)		
IE 6210	Applied Engineering Statistics	
IE 6315	Production and Service Systems	
One course from the two operations research courses listed below		
IE 6560	Deterministic Optimization	
DSA 6200	Operations Research	
Concentration course requirement (9 credits)		
DSA 6000	Data Science and Analytics (REQUIRED)	
IE 6430	Computer Simulation Methods	
IE 7811	Data Mining: Algorithms and Applications	



IE 7860	Intelligent Analytics
CSC 5800	Intelligent Systems: Algorithms and Tools
ECO 7100	Econometrics I
CSC 6710	Database Management Systems I
Electives: 12 credits	

## Systems Engineering

Code	Title	Credits
IE core course requirement (9 credits)		
IE 6210	Applied Engineering Statistics	
IE 6560	Deterministic Optimization	
IE 6315	Production and Service Systems	
Concentration course requirement (9 credits)		
SYE 6490	Introduction to Systems Engineering in Design (REQUIRED)	
IE 5490	Creative Problem Solving in Design and Manufacturing	
IE 6220	Value Engineering	
IE 6240	Quality Management Systems	
IE 6270	Engineering Experimental Design	
IE 6405	Integrated Product Development	
IE 6720	Engineering Risk and Decision Analysis	
IE 6840	Project Management	
SYE 6491	Systems Engineering Thinking and Concepting	
SYE 6492	Adaptive Acquisition	
Electives: 12 credits		

## Industrial Engineering (Ph.D.)

The Doctor of Philosophy degree is conferred upon individuals who have demonstrated the ability to make original contributions to the knowledge in this field. The Ph.D. program develops experts and professionals who will continue in academic work, industry, or government. It encourages the attainment of excellence in research and scholarship necessary to catalyze the advancement of industrial engineering.

## Traditional Ph.D. Program – Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In general, applicants are required to have a Graduate degree in engineering or a related discipline (e.g., operations research, MBA, information systems, or mathematics) with a 3.5 GPA or higher. Students with an undergraduate degree in one of these areas and a grade point average of 3.5 or above may apply for direct admission to the Ph.D. program. While such direct admissions will be rare, admission will be predicated on the specific courses and strength of the undergraduate curriculum as well as interests of faculty.

Applicants with an undergraduate major in mathematics, computer science, or the physical sciences, completed at an accredited institution, are also eligible for admission to this program, provided an evaluation concludes that the educational background includes sufficient background in analytically-oriented course work. Please visit the Doctor of Philosophy in Industrial & Systems Engineering (<https://engineering.wayne.edu/industrial-systems/academics/phd/>) website for more information.

## Global Executive Track Ph.D. Program – Admission Requirements

This is a unique track/curriculum designed to accommodate the busy schedule of working executives. Applicants for this cohort-based program are expected to bring ten years of experience with five years or more of significant managerial experience and management span of control, global experience, a technical B.S. Degree, and a relevant graduate degree. Admission to this program is contingent upon admission to the Graduate School (p. 21). Upon completion of the program, the candidate earns a Ph.D. in Industrial Engineering. Every year, a limited number of highly qualified, full-time working professionals are admitted for the Winter term (limited admissions in Summer or Fall terms). Please visit the Global Executive Track Ph.D. (<https://engineering.wayne.edu/industrial-systems/academics/get-phd/>) website for more information.

## Industrial Engineering (Ph.D. Program)

The Doctor of Philosophy degree requires ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credits. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

The Industrial & Systems Engineering doctoral program is designed to be flexible, in order to meet the individual student's interests and to reflect the dynamic nature of the field. It is comprised of five major stages:

1. **Advisor/Program Selection:** The first stage is devoted to the selection of a faculty advisor, taking course work, and the production of a Plan of Work in consultation with the student's faculty advisor. Students are encouraged to investigate the different areas of research available by talking with various graduate faculty members and attending research seminars held by the Department. Advisor selection should be done within the first semester of admission. The student will then begin course selection and outlining the Plan of Work. The approved Plan of Work must designate a primary area of research. The student is encouraged, in consultation with their advisor, to define his/her own primary and minor fields of interest by the selection of a cohesive grouping of available graduate courses. The Plan of Work must include at least thirty credits in course work at, or above, the 7000 level. Twenty-one of these credits must be in course work other than directed study (IE 7990).
2. **Examination:** All Ph.D. students must pass the examinations outlined below. After successful completion of the written qualifying examination, a student may be admitted to the status of doctoral candidate.
  - a. **Written Qualifying Examination (Preliminary Exams):** The exams are scheduled once each year in late May. The exam includes three separate tests: 1) probability, 2) statistics and 3) operations research. The material tested by the exams is generally covered in master's level or advanced undergraduate courses. Relevant courses include BE 2100, IE 6210, and IE 6560. The math course MAT 5700 is also good preparation for the probability exam. Students must take the preliminary examination before completing three academic year semesters of work after their masters degree. Doctoral students entering the program in Fall are expected to take the exam the following winter. Students who enter in winter would take the exam, a year later in their second winter semester. A student must take all three parts of the examination. If the student passes only two of the exams, the student will be required to retake only the third exam the next time it is offered. If a student fails at least two exams, the student will have to take all three exams the next time they are offered. Once a student has taken the preliminary exam once and failed all or part of the exam, the student MUST take the exam



the next time it is offered; not doing so will count as a second failed attempt. Students will have two chances to pass the entire preliminary examination. If all or parts of the exam are not passed by the second attempt, the student will be asked to leave the doctoral program.

- b. **Oral Qualifying Examination (Proposal Defense):** This examination shall be a presentation of the student's proposal for dissertation research, and will be administered by the student's Doctoral Dissertation Committee. The Oral Examination must be satisfactorily completed at least twelve months prior to the Dissertation Defense. After completion of the written qualifying exam, the student will continue to develop the dissertation prospectus, a document that provides evidence that the prospective doctoral candidate has completed adequate preliminary research on the topic of the proposed doctoral dissertation. The principles for determining the scope of the prospectus are detailed in the Doctoral Dissertation Outline and Record of Approval form (<http://wayne.edu/gradschool/>).
3. **Dissertation Committee Formation:** With the approval of the Department Doctoral Committee, the student establishes a Dissertation Committee that consists of four members. If there are co-chairs, the committee will consist of five members. At least two committee members are from the student's home department, Industrial & Systems Engineering. The Chairperson and one additional member must hold a Regular Graduate Faculty appointment in the Department of Industrial & Systems Engineering. The committee will also include an external member from outside the department. This Committee is responsible for administering the prospectus and the dissertation defense of the candidate.
4. **Candidacy:** Candidacy is reached after the Plan of Work has been approved, the written qualifying examination has been passed, approximately fifty credits in course work have been completed, and the dissertation committee has been formed. Upon completion of these requirements, a Recommendation for Doctor of Philosophy Candidacy Status form is submitted to the Graduate School in order to advance the Ph.D. applicant to Candidate Status.
5. **Dissertation** requirements are satisfied by the successful completion of thirty credits of dissertation research. The thirty credit dissertation registration requirement is fulfilled by registering for the courses IE 9991, IE 9992, IE 9993, and IE 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. All Ph.D. students must pass the written qualifying examination and apply for doctoral candidacy before election of dissertation credits. All Ph.D. students must register for dissertation credits or candidacy maintenance status (IE 9995) for any semester in which they utilize campus facilities or consult with faculty, even though they may not be enrolled in a formal lecture course. The dissertation defense will be publicized by public notice to the academic community; at this session the candidate presents his/her doctoral research for final approval by the Doctoral Dissertation Committee. A minimum of one first author peer reviewed journal publication is required before defending the Doctoral Dissertation. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). Students should consult the Graduate School's regulations (p. ) governing doctoral study.

#### Required Courses (must pass at least two)

Code	Title	Credits
IE 7220	Advanced Statistical Methods	3
IE 7511	Linear and Nonlinear Optimization	3
IE 7710	Stochastic Processes	3

## Global Executive Track PhD Program

The Global Executive Track (GET) PhD Program follows the same requirements as the traditional PhD Program as detailed above. The only differences between these two tracks is they have an alternative option for completing the Written Qualifying Examination and different core courses that are required.

### Written Qualifying Examination - Global Executive Track Program Option

To enhance writing skills and provide the learning partners with the opportunity to contribute to the body of teaching knowledge in industrial and systems engineering, each Executive Track cohort will draw on their years of relevant experience to develop and defend two (2) original Teaching Case Studies throughout the program. Successful development and defense of these two case studies will serve to satisfy the written qualifying examination requirement of the Global Executive Ph.D. track.

### Required Courses

Code	Title	Credits
IE 8941	From Idea through Launch: Products and Services I	2-3
IE 8942	From Idea through Launch: Products and Services II	2-4
IE 8943	From Launch through Sustainability: Products and Services I	2-4
IE 8944	From Launch through Sustainability: Products and Services II	2-4
IE 8960	Literature Review	1-2
IE 8930	Global Perspectives and Networks	3

## Manufacturing Engineering (M.S.)

The M.S. degree program in manufacturing engineering is built on a core designed to provide a firm foundation in the various elements of manufacturing and systems engineering. Building on this preparation, the student constructs a concentration in one of five areas.

### Program objectives

Graduates will be able to:

1. Understand and integrate the design, test and build product life cycle
2. Model, analyze and control design and production activities
3. Understand the impact of quality, cost and timeliness metrics on manufacturing performance
4. Demonstrate a basic understanding of manufacturing processes and technologies
5. Perform data analysis and optimization for decision making
6. Develop business cases for justifying process, organizational and technological projects
7. Support for systems engineering and project management
8. Communicate effectively (written, verbal and presentation) across all levels in the enterprise
9. Develop an ability to grow through life long acquisition of knowledge

Students must achieve at least a 'B' (3.0) grade point average and achieve 'B' or greater in MS Manufacturing Engineering core courses. A limited number of grades below 'B' and 'B-', though unsatisfactory for graduate level work, may be applied toward a graduate degree provided they are offset by a sufficient number of higher grades to maintain a grade point average of 3.0. Unsatisfactory grades can constitute reason for dismissal from the MS ME program at the department or program's discretion.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Applicants with a baccalaureate degree in engineering from an institution accredited by the Accreditation Board for Engineering and Technology (ABET) and who have earned a grade point average of at least 2.8 in the upper division of their undergraduate program are eligible for admission. The GRE Exam is not required for applicants. However, a high GRE score will be considered as an incentive for the evaluation process. Additionally, applicants with an undergraduate degree in mathematics, physics, computer science, or another discipline with a strong analytical base may be considered for admission.

Applicants whose undergraduate education is deficient in prerequisites for graduate classes may be required to take background courses that will NOT count toward the 30-credit degree requirement.

Applicants can provide supplemental materials such as resume, personal statement, GRE scores, and letters of recommendation to support their application.

Prospective students should contact M.S. Manufacturing Engineering Program Chair, Dr. Kyoung-Yun Kim (<https://engineering.wayne.edu/profile/ay4142/>), for program information or Graduate Program Coordinator, Beth Madigan (<https://engineering.wayne.edu/profile/bb4879/>), for admissions and application concerns.

The Master of Science in Manufacturing Engineering is offered under the following options: Plan A (thesis option) and Plan C (coursework option). Students must achieve a minimum of a B grade in each core course.

## Plan A - Thesis

Requires a minimum of thirty credits including six to eight thesis credits. If a thesis option (Plan A) is selected, six to eight credits of Master's Thesis Research and Direction (IE 8999) is required. Student pursuing Plan A must take nine credits of IE core courses and design an individual program of study that must be approved by both the thesis research advisor and the appropriate M.S. program chair or graduate advisor. To register for ISE thesis credits, students must submit the thesis credit registration approval form to their appropriate M.S. program chair or graduate advisor. Up to two courses (six to eight credits) may be earned in courses outside the Industrial and Systems Engineering Department, but require approval by the appropriate M.S. program chair or graduate advisor. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

**Note:** M.S. student pursuing IE 6991 Industrial Internship for curriculum practical training (CPT) may use a maximum of 6 IE 6991 credits towards the M.S. in Manufacturing Engineering degree requirements. Except in specific cases, IE 6991 must be taken in 2 credit blocks.

## Course Requirements

Code	Title	Credits
IE 6210	Applied Engineering Statistics	3
IE 6315	Production and Service Systems	3
One course from the two courses listed below		3
IE 6405	Integrated Product Development	
IE 6420	CAD/CAM	
Thesis credit requirement		6-8
IE 8999	Master's Thesis Research and Direction	

Electives	13-15
<b>Total Credits</b>	<b>30</b>

## Plan C - Coursework

Requires a minimum of thirty credits of course work. Plan C requires nine credits of IE core for the general option and nine credits of IE core if a concentration is pursued. While ISE core courses provide fundamental IE knowledge, depth within a specific IE field can be acquired by completing a M.S. in Manufacturing Engineering concentration in Advanced Manufacturing Systems, Quality Engineering, or SMART Manufacturing Systems. Students interested in an area not among the concentrations listed should elect the general option. Up to two courses (six to eight credits) may be earned in courses outside the Industrial and Systems Engineering Department, but require approval by the appropriate M.S. program chair or graduate advisor. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

**Note:** M.S. student pursuing IE 6991 Industrial Internship for curriculum practical training (CPT) may use a maximum of six IE 6991 credits towards the M.S. in Manufacturing Engineering degree requirements. Except in specific cases, IE 6991 must be taken in 2 credit blocks.

## General Option

Code	Title	Credits
IE 6210	Applied Engineering Statistics	3
IE 6315	Production and Service Systems	3
One course from the two courses listed below:		3
IE 6240	Quality Management Systems	
IE 6611	Fundamentals of Six Sigma	
One course from the two courses listed below		3
IE 6405	Integrated Product Development	
IE 6420	CAD/CAM	
Electives		18
<b>Total Credits</b>		<b>30</b>

## Advanced Manufacturing Systems Concentration

Code	Title	Credits
<b>Core Courses:</b>		
IE 6210	Applied Engineering Statistics	3
IE 6315	Production and Service Systems	3
One course from the two courses listed below		3
IE 6405	Integrated Product Development	
IE 6420	CAD/CAM	
<b>Required Concentration Course:</b>		
IE 7445	Manufacturing Analytics	3
<b>Additional Concentration Courses (Choose 2):</b>		<b>6</b>
IE 6000	Digital Automation	
IE 6425	Product Lifecycle Management and Sustainable Design	
IE 6442	Facilities Design and Materials Flow	
IE 6422	Flexible Manufacturing Systems	
Electives		12
<b>Total Credits</b>		<b>30</b>

## Quality Engineering Concentration

Code	Title	Credits
IE 6210	Applied Engineering Statistics	3
IE 6315	Production and Service Systems	3
One course from the two courses listed below		3
IE 6405	Integrated Product Development	
IE 6420	CAD/CAM	
<b>Concentration Courses:</b>		
IE 6611	Fundamentals of Six Sigma	3
IE 6270	Engineering Experimental Design	3
IE 6310	Lean Operations and Manufacturing	3
Electives		12
<b>Total Credits</b>		<b>30</b>

## SMART Manufacturing Concentration

Code	Title	Credits
<b>Core Courses</b>		
IE 6210	Applied Engineering Statistics	3
IE 6315	Production and Service Systems	3
One course from the two courses listed below		3
IE 6405	Integrated Product Development	
IE 6420	CAD/CAM	
<b>Required Concentration Course</b>		
IE 6000	Digital Automation	3
<b>Additional Concentration Courses</b>		
Select two from the following:		6
IE 6425	Product Lifecycle Management and Sustainable Design	
IE 6430	Computer Simulation Methods	
IE 6435	Fundamentals of Sustainable Manufacturing	
IE 6510	Information Systems for the Manufacturing Enterprise	
IE 6010	IoT and Edge AI Programming	
IE 6040	Simulation in Robotics Using ROS	
Electives		12
<b>Total Credits</b>		<b>30</b>

## Systems Engineering (M.S. Online)

The M.S. in Systems Engineering program aims to provide specialized skills and training engineers will need to address subjects related to systems engineering according to the standard set by the International Council on Systems Engineering in an online instruction method. The program offers two concentrations: 1) General Commercial Systems, and 2) Defense Systems.

### Admission Requirements

Admission to the M.S. in Systems Engineering is contingent upon admission to the Graduate School (p. 21). Students must have a bachelor's degree or the equivalent in Engineering from an accredited college or university. Students from all science, technology, engineering, and math (STEM) disciplines will be considered for admission. Professional experience will be considered in admission.

### Program Requirements

The M.S. in Systems Engineering is offered in an entirely online format. The program requires students to complete a minimum of thirty credits in course work. There will be two concentrations: General Commercial

Systems and Defense Systems. Both concentrations offer a thesis option. All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## General Commercial Systems Concentration

Code	Title	Credits
<b>Core Courses</b>		
IE 6405	Integrated Product Development	3
IE 6270	Engineering Experimental Design	3
SYE 6490	Introduction to Systems Engineering in Design	3
SYE 7495	Systems Engineering Capstone	3
<b>Concentration Course</b>		
SYE 6491	Systems Engineering Thinking and Concepting	3
<b>Elective Courses</b>		
Select 15 credits of elective courses.		15
<b>Total Credits</b>		<b>30</b>

## Defense Systems Concentration

Code	Title	Credits
<b>Core Courses</b>		
IE 6405	Integrated Product Development	3
IE 6270	Engineering Experimental Design	3
SYE 6490	Introduction to Systems Engineering in Design	3
SYE 7495	Systems Engineering Capstone	3
<b>Concentration Courses</b>		
SYE 6491	Systems Engineering Thinking and Concepting	3
SYE 6492	Adaptive Acquisition	3
SYE 7491	Systems Engineering Processes – Early to Mid-Design	3
SYE 7492	Systems Engineering Processes – Late to Post-Design	3
<b>Elective Courses</b>		
Select 6 credits of elective courses.		6
<b>Total Credits</b>		<b>30</b>

## Systems Engineering (Bridge Graduate Certificate)

This program is designed for technical professionals with work experience and a degree in engineering. The program consists of twelve credits of coursework scheduled for completion by working engineers in two years. The certificate can serve as a bridge to the M.S. degree in Engineering Management or Industrial Engineering.

### Admission Requirements

Applicants must meet the requirements for admission to the Graduate School (p. 21), and either the M.S. program in Industrial Engineering (p. 165) or Engineering Management (p. 165). They must hold a baccalaureate degree in engineering from an institution accredited by the Accreditation Board for Engineering and Technology (ABET). In addition, they must have earned a grade point average of at least 2.8 in the upper division of their undergraduate program or have at least three years of full-time engineering work experience.

## Requirements – Traditional Program

Students must complete fifteen credits consisting of one required foundation course in systems engineering; two core courses in systems engineering, one elective course, and a required capstone course.

As a bridge certificate, students may later apply all certificate credits toward Master's degree requirements in Engineering Management or Industrial Engineering, provided any such credits have been earned with a minimum 'B' grade and are within the six years time limit for completing the Master's degree.

**Graduation Requirements:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). Students may enroll on a full-time or part-time basis but must complete requirements within three years of admission.

Code	Title	Credits
SYE 6490	Introduction to Systems Engineering in Design	3
IE 6405	Integrated Product Development	3
IE 6720	Engineering Risk and Decision Analysis	3
Systems Engineering Capstone Course		3
IE 7995	Graduate Special Topics	
Select 3 Credits from the following courses:		3
IE 6125	Human Factors Engineering	
IE 6220	Value Engineering	
IE 6240	Quality Management Systems	
IE 6255	Quality Engineering	
IE 6275	Reliability Estimation	
IE 6425	Product Lifecycle Management and Sustainable Design	
IE 6840	Project Management	
IE 7480	Knowledge-Based Design	
<b>Total Credits</b>		<b>15</b>

## Requirements – Online Program

This online program is designed for technical professionals with work experience and a degree in engineering. The program consists of twelve credits of online coursework followed by a required 3-credit capstone course for completion by working engineers in two years. The certificate is designed in accordance with the International Council on Systems Engineering (INCOSE) standards, the leading Professional Society in this space, in order to prepare those in the program for INCOSE certification exams.

Code	Title	Credits
SYE 6490	Introduction to Systems Engineering in Design	3
IE 6405	Integrated Product Development	3
IE 6720	Engineering Risk and Decision Analysis	3
IE 6840	Project Management	3
Systems Engineering Capstone Course		3
IE 7995	Graduate Special Topics	
<b>Total Credits</b>		<b>15</b>

## Mechanical Engineering

Office: 2100 W. Engineering Building; 313-577-3843; Fax: 313-577-8789  
Chairperson: Nabil G. Chalhoub  
<https://engineering.wayne.edu/mechanical> (<https://engineering.wayne.edu/mechanical/>)

The opportunities and challenges in the field of mechanical engineering are diverse and virtually unlimited. The broad variety of career possibilities includes research and development, design analysis and synthesis, manufacturing and production engineering, testing, sales, engineering, maintenance and administration. The challenge of a mechanical engineer may lie in the perfection and reliability of a device that will be duplicated a million-fold or in the control optimization of a single complex system of unique design. The mechanical engineering curriculum is designed to prepare graduate students in many applied fields, including such important areas as biomechanics, energy conversion, combustion engines, emissions controls, machine tool design, manufacturing, computer graphics, structural analysis, automatic controls, vehicle dynamics and design, continuum mechanics, fluid dynamics, environmental design, mechanisms, acoustics and noise control, laser diagnostics, and composite materials. Faculty members in the Department are currently engaged in state-of-the-art research in all of these areas. Specialized areas of research support for graduate students include: manufacturing processes, composite material behavior, combustion, acoustics and noise control, vibrations, laser diagnostics, biomechanics, control of mechanical systems, sheet metal stamping, and engine research.

Part-time study (with most courses offered in the evening) and cooperative programs allow professionals working in local industry to pursue graduate degrees while employed.

- Mechanical Engineering (M.S.) (p. 175)
- Mechanical Engineering (Ph.D.) (p. 178)

## Mechanical Engineering (M.S.)

Program specializations at the master's degree level may be undertaken in many areas, including acoustics, vibrations, machine tool design, biomechanics, combustion engines, controls, composite materials, and fluid and solid mechanics, among others. These program specializations are available to both part-time and full-time students, in either research or non-research degree programs.

## Admission Requirements

Applicants must apply online (<https://wayne.edu/apply/#graduate>) for admission. The applicant must have a bachelor's degree from an ABET accredited institution in the United States or a comparable degree from an officially recognized institution outside the United States to apply for graduate admission. He/she must have adequate preparation and discernible ability to pursue graduate study in the selected major field.

All applicants for the master's program, whose B.S. degree is not from an ABET-accredited university, are required to submit Graduate Record Examination (GRE (<http://www.ets.org/gre/>)) scores. International applicants are required to submit a WES Evaluation (<http://wayne.edu/admissions/graduate/international/>) for their transcripts. Note that the official transcript evaluation must be transmitted directly from WES to the Office of Graduate Admissions. Along with the application, the applicant must upload an official transcript from every college and/or university attended. All students who have earned degrees from a country where English is not the native language must have a minimum score of 79 on



the internet-based TOEFL (iBT) or 550 from a paper-based TOEFL (pBT) or IELTS score of 6.5.

To be admitted into the Mechanical Engineering graduate programs, an applicant must satisfy all Graduate School requirements (<https://wayne.edu/admissions/graduate/admission-requirements/>). In addition, a regular admission for Master's degree may be authorized if the applicant's grade point average (g.p.a) is 3.0/4.0 or better and if they hold a degree from an ABET accredited or equivalent institution. Students with an overall g.p.a. between 2.8 and 3.0 out of 4.0 in their B.S.M.E. degree program will be considered on a case-by-case basis.

Students with degrees in fields other than Mechanical Engineering or degrees from non-accredited institutions may be admitted to the post-bachelor program where students will be expected to complete a set of assigned courses with a grade of B or better in each course. The set of assigned courses will be selected from the following list of courses based on the student's field of interest:

Code	Title	Credits
ME 2200	Thermodynamics	3
ME 2410	Statics	3
ME 2420	Elementary Mechanics of Materials	3
ME 3300	Fluid Mechanics: Theory and Laboratory	4
ME 3400	Dynamics	3
ME 4150	Design of Machine Elements	4
ME 4210	Heat Transfer: Theory and Laboratory	4
ME 4300	Thermal Fluid Systems Design	4
ME 4500	Mechanical Engineering Design II	4

A successful completion of all post-bachelor program requirements will earn the student a regular admission to the Master's degree program in Mechanical Engineering.

All applicants must pay the \$50 Application Fee. Note that your application will not be assessed until all necessary items are submitted via our online application.

## Requirements – Traditional Program

The master's degree in mechanical engineering is offered under the following options:

**Plan A (Thesis Option):** A minimum of thirty-two credits in course work including an eight-credit thesis.

This program requires a minimum of 32 semester credits that can be selected as follows

- ME 8999 - MS Thesis (8 Cr.)
- A minimum of 8 credits (2 courses) should be taken at the 7000-level. At least 4 credits should be selected from the ME curriculum. Directed study and directed research courses (ME 7990 and ME 7996) cannot be used to satisfy this requirement.
- ME 5000 - Engineering Analysis I (4 Cr.) is a required core course
- A maximum of 8 credits may be taken from other Departments in Engineering (excluding Engineering Technology), Chemistry, Physics or Mathematics Departments
- A maximum of 4 credits may be taken in Directed Studies (ME 5990)
- A minimum of 4 courses (16 Cr.) should be taken from one of the three thrust areas of the ME Department

**Plan C (Coursework Option):** A minimum of thirty-two credits in course work.

This program requires a minimum of 32 semester credits that can be selected as follows

- A minimum of 12 credits should be taken at the 7000-level. At least 8 credits should be selected from the ME curriculum. Directed study and directed research courses (ME 7990 and ME 7996) cannot be used to satisfy this requirement.
- ME 5000 - Engineering Analysis I (4 Cr.) is a required core course
- A maximum of 8 credits may be taken from other Departments in Engineering (excluding Engineering Technology), Chemistry, Physics or Mathematics Departments
- A maximum of 4 credits may be taken in Directed Studies (ME 5990)
- A minimum of 4 courses (16 Cr.) should be taken from one of the three thrust areas of the ME Department.

Students can choose up to three semesters of internship with the permission of both the ME Graduate Advisor and the Office of International Students and Scholars (OISS). ME 6991 credits must be taken in addition to the minimum 32 credits required for the MSME under either plan A or plan C. The student is responsible for arranging the internship in the industry. Students are eligible to enroll in ME 6991 after successfully completing 16 credits in their graduate program.

## Course Group Requirements

The Department of Mechanical Engineering has three research thrust areas, namely the "Noise and Vibration Control", the "Advanced Materials and Manufacturing", and the "Advanced Propulsion and Energy Systems". In addition, many Biomedical Engineering courses are cross listed with ME courses and are available for ME Graduate students to take and be considered towards their degree. Graduate students must select a field of study in one of the three thrust areas of the ME Department.

All MSME students must select at least four courses from one of the three thrust areas listed above. The core course (ME 5000) is considered to be one of the four courses required from the selected thrust area.

### Noise and Vibration Control Thrust Area

Courses offered in the **Noise and Vibration Control** Thrust area are:

Code	Title	Credits
MAT 5000	Fundamental Concepts of Mathematics and Proof Writing	3
ME 5115	Fundamentals of Electric-drive Vehicle Modeling	4
ME 5400	Dynamics II	4
ME 5440	Industrial Noise Control	4
ME 5460	Fundamentals in Acoustics and Noise Control	4
ME 5990	Directed Study	1-4
ME 5995	Special Topics in Mechanical Engineering I	1-4
ME 6550	Modeling and Control of Dynamic Systems	4
ME 7315	Electric-drive Vehicle Simulation and Control	4
ME 7400	Advanced Dynamics	4
ME 7440	Signal Processing Technologies and Their Applications	4
ME 7460	Advanced Acoustics and Noise Control	4
ME 7480	Nonlinear Vibration	4
ME 7550	Control of Dynamic Systems	4
ME 7590	Nonlinear Control Systems	4
MAT 8999	Master's Thesis Research and Direction	1-8



## Advanced Materials and Manufacturing Thrust Area

Courses offered in the **Advanced Materials and Manufacturing** Thrust area are:

Code	Title	Credits
ME 5000	Engineering Analysis I	4
ME 5040	Finite Element Methods I	4
ME 5453	Product and Manufacturing Systems and Processes	4
ME 5580	Computer-Aided Mechanical Design	4
ME 5620	Fracture Mechanics in Engineering Design	4
ME 5700	Fundamentals of Mechanics	4
ME 5720	Mechanics of Composite Materials	4
ME 5990	Directed Study	1-4
ME 5995	Special Topics in Mechanical Engineering I	1-4
ME 7020	Finite Element Methods II	4
ME 7451	Advanced Manufacturing II: Material Forming	4
ME 7680	Manufacturing Processing Mechanics	4
ME 7720	Advanced Mechanics of Composite Materials	4
ME 7820	Engineering Non-Destructive Evaluation (NDE) Methods and Industrial Applications	4
ME 8020	Crashworthiness and Occupant Protection in Transportation Systems I	4
ME 8030	Crashworthiness and Occupant Protection in Transportation Systems II	4
ME 8999	Master's Thesis Research and Direction	1-8

## Advanced Propulsion and Energy Systems Thrust Area

Courses offered in the **Advanced Propulsion and Energy Systems** Thrust area are:

Code	Title	Credits
ME 5000	Engineering Analysis I	4
ME 5110	Fundamental Fuel Cell Systems	4
ME 5215	Fundamentals of Battery Systems for Electric and Hybrid Vehicles	4
ME 5300	Intermediate Fluid Mechanics	4
ME 5700	Fundamentals of Mechanics	4
ME 5800	Combustion Engines	4
ME 5810	Combustion and Emissions	4
ME 5990	Directed Study	1-4
ME 5995	Special Topics in Mechanical Engineering I	1-4
ME 7260	Heat and Mass Transfer	4
ME 7290	Advanced Combustion and Emissions I	4
ME 7310	Computational Fluid Mechanics and Heat Transfer	4
ME 8290	Advanced Combustion and Emissions II	4
ME 8999	Master's Thesis Research and Direction	1-8

## Courses Cross-listed with Biomedical Engineering

Cross-listed courses with **Biomedical Engineering** are:

Code	Title	Credits
ME 5100	Quantitative Physiology	4
ME 5160	Musculoskeletal Biomechanics	4
ME 5180	Introduction to Biomaterials	4
ME 6180	Biomedical Instrumentation	4
ME 7100	Mathematical Modeling in Impact Biomechanics	4
ME 7160	Impact Biomechanics	4

## Student Performance Requirements

- A grade of B or better must be earned for the core course ME 5000 – *Engineering Analysis I*.
- The Graduate GPA will be calculated using all graduate courses taken at Wayne State University. It must always be maintained at 3.0/4.0 or better; otherwise, the student will be placed under academic probation.
- Students on academic probation have one semester to raise their GPA to at least 3.0/4.0. Failure to do so will result in the student being excluded from the ME graduate program.

The overall GPA for completing MSME Degree is 3.0/4.0 or higher (i.e., "B" grade or better) with no more than two courses with grades less than C and no more than two courses can be repeated throughout the MSME program. A passing grade for any course is "B-" or better with the exception of the core course (ME 5000, which must be passed with a grade of "B"). Thesis credit requirements are met by satisfactory completion of ME 8999. Note that three "C+" or lower grades will result in termination of the student from the ME graduate program. All course work must be completed in accordance with the regulations of the Graduate School and the College governing graduate scholarship and degrees.

Graduate students may register for a maximum of 8 credits per semester unless they have permission from the ME Director of Graduate Studies.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## M.S. Thesis

The Master's Thesis Committee will consist of three graduate faculty members from the Department of Mechanical Engineering, including the advisor. Upon approval by the ME Director of Graduate Studies, one graduate faculty member of the Department of Mechanical Engineering may be replaced by a member from another department.

The Master's Thesis Committee will administer the final oral examination.

A public final oral examination based on the M.S. thesis is required. The examination will be administered by the advisor and two other graduate faculty members from the Department of Mechanical Engineering. One ME member of the thesis committee may be replaced by a non-ME graduate faculty, if the thesis topic is multi-disciplinary, with the approval of the ME Director of Graduate Studies. Passing of the examination requires a majority vote of the committee.

## Time Limitations

Students have a six-year time limit to complete all requirements for the Master's degree. The six-year period starts at the beginning of the semester during which the student has taken work that applies toward meeting the requirements of the degree. The College of Engineering reserves the right of re-validation of over-age credits. In re-validation cases the advisor and the student must set a terminal date for completion of all degree requirements, including such additional requirements as may be prescribed to re-validate the over-age credits. Time extensions beyond these conditions are authorized only for conditions clearly beyond the student's control.

In work counted toward a Master's degree, no credit may be more than six years old at the time all requirements are completed. A time extension may be authorized by the Associate Dean for Academic Affairs of the College of Engineering with the approval of the ME Department

Chairman, but only for conditions which are clearly beyond the control of the student. Upon recommendation of the advisor and approval of the Associate Dean for Academic Affairs of the College of Engineering, a student may arrange for re-validation of over-age credits which are between six and ten years old and which represent courses completed at Wayne State University. Credits from other institutions may not be re-validated. A special examination fee is charged for course re-validations.

## Graduation

Each degree candidate must file an Application for Degree at the beginning of the semester in which he/she plans to complete degree requirements at <https://reg.wayne.edu/students/degrees> (<https://reg.wayne.edu/students/degrees/>). The candidate should consult the academic calendar of the Graduate Division Bulletin. If an application for a degree was filed for a previous semester in which the student did not graduate, a new application is necessary.

## Requirements – Online Program

The online Master's of Science in Mechanical Engineering with a concentration in Energy Storage and Vehicle Science provides students with the proper training in emerging fields of energy storage systems, materials, safety and crash-worthiness of battery packs, hybrid powertrain, vehicle dynamics and controls. The online MSME requires the completion of a minimum of 32 credits (equivalent to eight courses) under master's Plan C: Coursework. The proposed curriculum has one core course (ME 5000, 4 cr.) and six required courses (24 credits). Students have to select one course from a suggested set of five courses (4 cr.). All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## Mechanical Engineering (Ph.D.)

### Admission Requirements

Applicants must apply online (<https://wayne.edu/apply/#graduate>) for admission to the Ph.D. program. Along with the application, the applicant must upload an official transcript from every college and/or university attended. All students who have earned degrees from a country where English is not the native language must have a minimum score of 79 on the internet-based TOEFL (iBT) or 550 from a paper-based TOEFL (pBT) or IELTS score of 6.5. Deadline dates for filing an Application for Admission are published by the Office of Graduate Admission (<http://www.gradschool.wayne.edu/>).

Doctoral applicants must present higher entrance qualifications than those required of master's degree applicants. To be admitted into the ME Ph.D. program, an applicant must satisfy all Graduate School requirements (<https://wayne.edu/admissions/graduate/admission-requirements/>). The applicant must have a grade point average (g.p.a.) of at least 3.5/4.0 in a master's degree program in mechanical engineering (M.S.M.E.) and must have completed a bachelor's degree from an ABET accredited institution in the United States or a comparable degree from an officially recognized institution outside the United States. The applicant must have adequate preparation and discernible ability to pursue graduate study in the major field he/she elects.

Applications to the Ph.D. program can also be submitted by students who have completed a bachelor's degree from an ABET accredited institution in the United States or a comparable degree from an officially recognized institution outside the United States with a g.p.a. of at least 3.6/4.0. Students with an undergraduate g.p.a. less than 3.6/4.0 must complete a master's degree in mechanical engineering prior to consideration for admission to the Ph.D. program.

Admission to the Ph.D. program is contingent upon satisfying the following requirements:

- All students must have a M.S. in Mechanical Engineering or a very similar field. Applicants without a M.S. in Mechanical Engineering are considered on a case-by-case basis.
- Submission of Graduate Record Examination (GRE) scores are optional.
- International applicants are required to submit a WES Evaluation (<https://wayne.edu/admissions/graduate/international/>) for their transcripts. Note that the official transcript evaluation must be transmitted directly from WES to the Office of Graduate Admissions.
- The admission to the Ph.D. program is contingent upon the approval of an Mechanical Engineering graduate faculty to serve as the permanent Ph.D. advisor for the applicant.

All applicants must pay the \$50 Application Fee. Note that your application will not be assessed until all necessary items are submitted via our online application.

## Course Requirements

A minimum of ninety credits beyond the baccalaureate degree must be earned in the Ph.D. program. These credits are distributed in the following way:

1. Thirty credits dissertation requirements are fulfilled by successfully completing ME 9991, ME 9992, ME 9993, and ME 9994 (*Doctoral Candidate Status: Dissertation Research and Direction I, II, III, and IV*, respectively). All Ph.D. students must have achieved the status of doctoral candidate before they will be allowed to register for dissertation credits. They are required to register for thesis or dissertation credits in 4 consecutive academic year semesters without any interruption (7.5 credits per semester). If a student has registered for all Doctoral Dissertation Research credits but has not completed dissertation requirements then he/she may register in ME 9995 - *Candidate Maintenance Status* until the requirements are completed, the time limit for degree is reached, or the student withdraws from the program.
2. A minimum of 30 credits must be earned in formal lecture credits.
3. At least 30 credits of course work beyond the Bachelor's degree must be in courses open only to graduate students (i.e., courses at 7000-level or higher).
4. At least half of all course work exclusive of dissertation credits must be earned in the Mechanical Engineering Department
5. All Ph.D. students are required to take the following core course:
  - ME 5000 – *Engineering Analysis I*
6. All Ph.D. students are required to select a minor field and complete at least 6 credit hours in courses numbered 5000 or above in the selected field.
7. A maximum of 30 credits may be earned in Special Topics courses.
8. A maximum of 8 credits may be earned in ME 7990 - *Directed Study*.
9. A maximum of 8 credits may be earned in ME 7996 - *Research*.
10. All course work must be completed in accordance with the regulations of the Graduate School and the College governing graduate scholarship and degrees.

### Note:

- A grade of B or better must be earned in all ME courses.
- A grade of B- or better must be earned in all non-ME courses (Minor).
- The Graduate GPA will be calculated using all graduate courses taken at Wayne State University.

The Mechanical Engineering Department has three research thrust areas, namely the "*Noise and Vibration Control*", the "*Advanced Materials and Manufacturing*", and the "*Advanced Propulsion and Energy Systems*". In addition, many *Biomedical Engineering* courses are cross listed with ME courses and are available for ME Graduate students to take and be considered towards their degree. Graduate students must select a field of study in one of the three thrust areas of the ME Department.

## Noise and Vibration Control Thrust Area

Courses offered in the **Noise and Vibration Control** Thrust area are:

Code	Title	Credits
ME 5000	Engineering Analysis I	4
ME 5115	Fundamentals of Electric-drive Vehicle Modeling	4
ME 5400	Dynamics II	4
ME 5440	Industrial Noise Control	4
ME 5460	Fundamentals in Acoustics and Noise Control	4
ME 5990	Directed Study	1-4
ME 5995	Special Topics in Mechanical Engineering I	1-4
ME 6550	Modeling and Control of Dynamic Systems	4
ME 7315	Electric-drive Vehicle Simulation and Control	4
ME 7400	Advanced Dynamics	4
ME 7440	Signal Processing Technologies and Their Applications	4
ME 7460	Advanced Acoustics and Noise Control	4
ME 7480	Nonlinear Vibration	4
ME 7550	Control of Dynamic Systems	4
ME 7590	Nonlinear Control Systems	4
ME 7990	Directed Study	1-4
ME 7995	Special Topics in Mechanical Engineering II	1-8
ME 7996	Research	1-4
ME 9990	Pre-Doctoral Candidacy Research	1-8
ME 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
ME 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
ME 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
ME 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
ME 9995	Candidate Maintenance Status: Doctoral Dissertation Research and Direction	0

## Advanced Materials and Manufacturing Thrust Area

Courses offered in the **Advanced Materials and Manufacturing** Thrust area are:

Code	Title	Credits
ME 5000	Engineering Analysis I	4
ME 5040	Finite Element Methods I	4
ME 5453	Product and Manufacturing Systems and Processes	4
ME 5580	Computer-Aided Mechanical Design	4
ME 5620	Fracture Mechanics in Engineering Design	4
ME 5700	Fundamentals of Mechanics	4
ME 5720	Mechanics of Composite Materials	4
ME 5990	Directed Study	1-4
ME 5995	Special Topics in Mechanical Engineering I	1-4
ME 7020	Finite Element Methods II	4

ME 7451	Advanced Manufacturing II: Material Forming	4
ME 7680	Manufacturing Processing Mechanics	4
ME 7720	Advanced Mechanics of Composite Materials	4
ME 7820	Engineering Non-Destructive Evaluation (NDE) Methods and Industrial Applications	4
ME 7990	Directed Study	1-4
ME 7995	Special Topics in Mechanical Engineering II	1-8
ME 7996	Research	1-4
ME 8020	Crashworthiness and Occupant Protection in Transportation Systems I	4
ME 8030	Crashworthiness and Occupant Protection in Transportation Systems II	4
ME 9990	Pre-Doctoral Candidacy Research	1-8
ME 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
ME 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
ME 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
ME 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
ME 9995	Candidate Maintenance Status: Doctoral Dissertation Research and Direction	0

## Advanced Propulsion and Energy Systems Thrust Area

Courses offered in the **Advanced Propulsion and Energy Systems** Thrust area are:

Code	Title	Credits
ME 5000	Engineering Analysis I	4
ME 5110	Fundamental Fuel Cell Systems	4
ME 5215	Fundamentals of Battery Systems for Electric and Hybrid Vehicles	4
ME 5300	Intermediate Fluid Mechanics	4
ME 5700	Fundamentals of Mechanics	4
ME 5800	Combustion Engines	4
ME 5810	Combustion and Emissions	4
ME 5990	Directed Study	1-4
ME 5995	Special Topics in Mechanical Engineering I	1-4
ME 7260	Heat and Mass Transfer	4
ME 7290	Advanced Combustion and Emissions I	4
ME 7310	Computational Fluid Mechanics and Heat Transfer	4
ME 7990	Directed Study	1-4
ME 7995	Special Topics in Mechanical Engineering II	1-8
ME 7996	Research	1-4
ME 8290	Advanced Combustion and Emissions II	4
ME 9990	Pre-Doctoral Candidacy Research	1-8
ME 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
ME 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
ME 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
ME 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
ME 9995	Candidate Maintenance Status: Doctoral Dissertation Research and Direction	0

## Courses Cross-listed with Biomedical Engineering

Cross-listed courses with **Biomedical Engineering** are:

Code	Title	Credits
ME 5160	Musculoskeletal Biomechanics	4
ME 5180	Introduction to Biomaterials	4
ME 6180	Biomedical Instrumentation	4
ME 7100	Mathematical Modeling in Impact Biomechanics	4
ME 7160	Impact Biomechanics	4
ME 7180	Advanced Topics in Biomaterials and Tissue Biomechanics	4

## Dissertation Committee

At the time the doctoral plan of work is being prepared, the Doctoral Committee which serves as both the Final Qualifying Examination Committee and the Dissertation Committee for each Ph.D. student should be formed. The permanent advisor of the student will serve as chairman of the Doctoral Committee. The Committee will be made up of at least three graduate faculty members from Mechanical Engineering and one graduate faculty member from outside the department. The other members will be selected by the student's permanent advisor subject to approval by the ME Director of Graduate Studies and the Office for Graduate Studies. The Doctoral Committee will administer the Final Written and Oral Qualifying Examinations and the Dissertation Public Lecture Presentation-Defense. Upon approval by the ME Director of Graduate Studies and the Graduate School Ph.D. Office, a graduate faculty member of the Mechanical Engineering Department may be replaced by a member from another department as long as the committee meets the minimum Graduate School requirement.

A "Doctoral Dissertation Outline" form, approved by all members of the Doctoral Committee and the Director of Graduate Studies, should be filed with the Graduate School PhD office at or near the beginning of the student's dissertation work.

## Ph.D. Candidacy Requirements

An approved Ph.D. Plan of Work must be filed with the Office for Graduate Studies within one semester after passing the preliminary qualifying examination (PQE). A student must have completed 50 graduate credits that count toward the Ph.D. program, formed a Ph.D. committee and submitted a "Recommendation for Candidacy" form to the Graduate School. Changes in the Plan of Work must be approved by the advisor and the ME Director of Graduate Studies.

### Requirements For All Ph.D. Students

- **Preliminary Qualifying Examination:** This is a three-part written examination administered twice per year by the ME Graduate Program Committee during the first week of the months of October and February. All Ph.D. applicants must pass this examination within their first year after joining the Ph.D. program at WSU. Students must fill out the "PQE Registration Form" that can be downloaded from the ME web site and submit it to the ME Graduate Program Director or at the ME front desk no later than one week prior to the exam date.
- **Final Qualifying Examination:** This examination consists of written and oral parts covering the student's major and minor areas and other related fields. The oral part of the examination shall include a presentation of the proposal for the dissertation research. The Final Qualifying Examination is administered by the student's Doctoral Committee.
  - Under ordinary circumstances, the committee members may not be changed before the Qualifying Examination (written and oral) have been passed. Under extraordinary circumstances the Office for Graduate Studies may approve a committee change, but such

change shall require written justification and approval in advance of the examination.

- If the student fails the final qualifying examination, he/she must be re-examined before the end of the semester that follows the one in which the failure occurred. The student is allowed only one re-examination. Successive failure of the examination will result in dismissal.
- The student passes the final qualifying examination upon the recommendation of his/her Ph.D. Committee with no more than one dissenting vote.
- **An approved Plan of Work** should be filed with the Office for Graduate Studies. The Plan of Work form can be downloaded from the Graduate School web site at <https://gradschool.wayne.edu/phd/forms> (<https://gradschool.wayne.edu/phd/forms/>).
- **A Doctoral Dissertation Outline**, approved by all members of the Doctoral Committee and the Departmental Graduate Program Committee, should be filed by the student immediately after completing the oral part of the Final Qualifying Examination.
- **The Conflict of Interest Form** must be turned in twice, once with the Prospectus and again with the pre-defense paperwork (Final Report Form). The Conflict of Interest Form can be downloaded from the Graduate School web site at <https://gradschool.wayne.edu/phd/forms> (<https://gradschool.wayne.edu/phd/forms/>).
- **The Safe Assign form** must be turned in three weeks prior to the Dissertation Defense.
- **Pre-Defense Presentation:** At least four weeks before the planned Dissertation Public Lecture Presentation-Defense, the student will present a preliminary dissertation defense lecture to the members of his/her Ph.D. Committee, who will provide a feedback to the student within two weeks for the purpose of incorporating any changes/corrections in the thesis.
- Before graduation, each Ph.D. student is expected to have one journal paper accepted.
- **Dissertation Public Lecture Presentation-Defense:** The dissertation format and appearance must be approved by the Office for Graduate Studies before the Dissertation Public Lecture Presentation-Defense is to be arranged. Additionally, each committee member must have certified, in writing (using the Dissertation Public Lecture Presentation-Defense form), that the dissertation has been read and approved for a Public Lecture Presentation-Defense.
  - The final lecture is to be publicized by public notice to the academic community. This responsibility rests with the student's advisor. At this final lecture, the candidate will outline his/her methodology, research and the results of the investigation. Members of the committee will lead the discussion following the presentation.
  - At the conclusion of the oral defense of the dissertation, the Graduate Examiner shall poll the Dissertation Committee and report in writing to the Office for Graduate Studies. The Graduate Examiner is the presiding officer at the Defense and is responsible for its conduct. The role of the Graduate Examiner may be assumed by the dissertation advisor or an external member of the committee.
- For additional information, students should consult the Graduate School's regulations (p. ) governing doctoral study.

## Time Limitations

Students have a seven-year time limit to complete all requirements of the Ph.D. degree. The seven-year period starts at the beginning of the semester during which the student was admitted to doctoral study and was working toward fulfilling the requirements of the degree. Up to thirty-two graduate credit hours with a grade B or better earned prior to the



student's admission as a doctoral applicant may be applied toward the degree without regard to lapse of time. Credits earned beyond these thirty-two semester hours will not be counted towards the Ph.D. degree at the time of admission to the Ph.D. program. Credits earned after acceptance as a Ph.D. applicant may not be over seven years old at the time the degree is conferred, except when, on the recommendation of the advisor, up to ten semester hours of credit previously earned at Wayne State University may be specified for revalidation by examination. In the event that any courses have been previously revalidated in connection with the earning of the Master's degree, these shall be counted as a part of the total ten. Time extensions beyond these limitations can only be approved by the Graduate School on a yearly basis. The extension requests should reflect conditions that are clearly beyond the student's control.

## Graduation

Each degree candidate must file an Application for Degree at the beginning of the semester in which he/she plans to complete degree requirements at <https://reg.wayne.edu/students/degrees> (<https://reg.wayne.edu/students/degrees/>). The candidate should consult the academic calendar of the Graduate Division Bulletin. If an application for a degree was filed for a previous semester in which the student did not graduate, a new application is necessary. The student must be registered in the semester he/she plans to graduate.

## Programs Offered by the College of Engineering

### Electric-drive Vehicle Engineering

The Electric-drive Vehicle Engineering (EVE) programs are interdisciplinary, involving faculty from the Departments of Chemical Engineering and Materials Science, Electrical and Computer Engineering, Industrial and Systems Engineering, and Mechanical Engineering. These programs were established in 2009, and developed in close cooperation with governmental agencies, industry, and the U.S. Department of Energy. The mission of the EVE program is to educate and prepare the technical and scientific workforce for the emerging electric-drive vehicle industry; to promote and mobilize/align available resources to develop interdisciplinary research programs; and to disseminate technical information and raise public awareness on the emerging electric-drive vehicle technology.

Programs offered:

- Electric-drive Vehicle Engineering (M.S.) (p. 182)
- Electric-drive Vehicle Engineering (Graduate Certificate) (p. 181)

### Mobility

People require mobility, because it empowers them to conquer the distance that separates their homes from the locations where they study, work, shop, seek medical treatment, do business, or visit friends. In the meanwhile, Wayne State University is demonstrating a commitment to improve quality of life for individuals and communities through excellence in mobility-related research, teaching, and service. This certificate program is the first of its kind in Michigan, focusing on mechanisms known as mobility, which is the ability to meet the needs of society to move freely, gain access, communicate, commute, and establish connectivity with the advanced mobility technologies today or in the future.

Programs offered:

- Mobility (Graduate Certificate) (p. 182)

### Sustainable Engineering

Students will learn the fundamentals of sustainable engineering, extend their knowledge in the application of sustainable engineering principles, and maintain their technical competitiveness by broadening their sustainability expertise.

Programs offered:

- Sustainable Engineering (Graduate Certificate) (p. 184)

### Electric-drive Vehicle Engineering (Graduate Certificate)

This program is designed to prepare the scientific and technological workforce for the emerging electric-drive vehicle engineering field. It offers an efficient way to obtain a certified level of training, especially for working engineers and researchers. It may be taken as a freestanding program or concurrently with a master's degree program.

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). The program will be open to students with a Bachelor's



degree in engineering, chemistry, and physics, and in other mathematics-based sciences in exceptional cases.

## Program Requirements

The Electric-drive Vehicle Engineering Graduate Certificate will require a minimum of twelve credits. The core course EVE 5110 is required, and a maximum of four credits is allowed in Research or Directed Studied. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134). Should a student become interested later in pursuing the proposed master's degree after completing the graduate certificate, eight of the twelve certificate credits can be transferred toward the master's degree.

## Electric-drive Vehicle Engineering (M.S.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21) for requirements. Additionally, the Grade Point Average required for regular admission to M.S. degree program is 3.0 or above. Qualified admission (2.5 - 3.0) is possible if an applicant has significant relevant professional experience. The program will admit students with Bachelor's degrees or the equivalent in engineering from an accredited college or university. Students with mathematics-based science degrees will be considered for admission on a case-by-case basis. No other specific admission requirements are needed, however, letters of recommendation, a statement of objectives, and Graduate Record Examination (GRE) scores are encouraged to aid the admission evaluation process.

### Program Requirements

A minimum grade point average of 3.00 is required for the M.S. in Electric-drive Vehicle Engineering. A maximum of one course in which a "C" has been received may be used to meet graduation requirements, provided the "C" is offset by equivalent credits of "A" to maintain the required 3.00 average.

This Master of Science degree is offered under the following options:

**Plan A:** Thirty credits, including a six-credit thesis.

**Plan C:** Thirty credits of course work in an approved EVE Plan of Work.

Both options require at least twelve credits of any Electric-drive Vehicle Engineering (EVE) courses, including two core courses:

Code	Title	Credits
EVE 5110	Fundamentals of Electric-drive Vehicle Engineering	3
or EVE 5115	Fundamentals of Electric-drive Vehicle Modeling	
EVE 5120	Fundamentals of Battery Systems for Electric and Hybrid Vehicles	4

Requirements for both options include at least six credits of 7000-level or higher course work. The 7000-level or higher course requirements can be satisfied through EVE courses, directed studies (EVE 7990), industry internship (EVE 7991), or thesis credits (EVE 8999) of EVE-related projects, or approved 7000-level or higher classes from other departments in the College of Engineering.

The elective eighteen credits can be from other departments in the College of Engineering, such as:

Code	Title	Credits
<b>Computer Science</b>		
CSC 5100	Introduction to Mobility	3
CSC 6280	Real-Time and Embedded Operating Systems	3
CSC 7991	Advanced Topics in Computer Science	1-4
CSC 8260	Seminar in Networking, Distributed Systems and Parallel Systems	3
<b>Electrical and Computer Engineering</b>		
ECE 5330	Modeling and Control of Power Electronics and Electric Vehicle Powertrains	3
ECE 5340	Advanced Energy Storage Systems for Electrification of Vehicles	3
ECE 5410	Power Electronics and Control	3
ECE 5620	Embedded System Design	4
ECE 5675	Sensors and Sensor Instrumentation	3
ECE 7690	Fuzzy Systems	3
ECE 7730	Telematics	4
<b>Industrial Engineering</b>		
IE 6310	Lean Operations and Manufacturing	3
IE 6560	Deterministic Optimization	3
IE 6611	Fundamentals of Six Sigma	3
IE 6840	Project Management	3
IE 7511	Linear and Nonlinear Optimization	3
<b>Mechanical Engineering</b>		
ME 5040	Finite Element Methods I	4
ME 5453	Product and Manufacturing Systems and Processes	4
ME 5800	Combustion Engines	4
ME 5810	Combustion and Emissions	4
ME 7020	Finite Element Methods II	4
ME 7290	Advanced Combustion and Emissions I	4
ME 7451	Advanced Manufacturing II: Material Forming	4
ME 7680	Manufacturing Processing Mechanics	4
ME 8030	Crashworthiness and Occupant Protection in Transportation Systems II	4

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

## Mobility (Graduate Certificate)

People require mobility, because it empowers them to conquer the distance that separates their homes from the locations where they study, work, shop, seek medical treatment, do business, or visit friends. In the meanwhile, Wayne State University is demonstrating a commitment to improve quality of life for individuals and communities through excellence in mobility-related research, teaching, and service. This certificate program is the first of its kind in Michigan, focusing on mechanisms known as mobility, which is the ability to meet the needs of society to move freely, gain access, communicate, commute, and establish connectivity with the advanced mobility technologies today or in the future.

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/admission/>). A student needs to hold a bachelor's degree in a discipline of engineering from an accredited institution. The program is also open to

students who are currently enrolled in a graduate degree program in the College of Engineering at Wayne State University.

## Program Requirements

Students must complete CSC 5280/ECE 5280: Introduction to Cyber-Physical Systems (CPS) or CSC 5100: Introduction to Mobility as well as two-intermediate-level courses and one advanced course in one of the Mobility tracks: Sensing, Computer and Networking, Control and Robotics, Smart Transportation, Smart Grid, Connected Autonomous Vehicles, or Smart Health.

A maximum of nine credits taken in the Mobility Graduate Certificate Program may be applied toward a graduate degree subject to approval of the relevant academic unit and Graduate Office. All requirements must be completed within three years with a minimum 3.0 GPA required in the certificate coursework. All course work must be completed in accordance with the regulations of the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the College of Engineering (<http://bulletins.wayne.edu/graduate/college-engineering/academic-regulations/>).

### Sensing Track

Code	Title	Credits
<b>Introductory course (select one)</b>		<b>3</b>
CSC 5100	Introduction to Mobility	
CSC/ECE 5280	Introduction to Cyber-Physical Systems (Or)	
<b>Intermediate level courses (select two):</b>		<b>6</b>
ECE 5575	Introduction to Micro and Nano Electro Mechanical Systems (MEMS/NEMS)	
ECE 6570	Smart Sensor Technology I: Design	
BME 6480	Biomedical Instrumentation	
CSC 5825	Introduction to Machine Learning and Applications	
CSC 6860	Digital Image Processing and Analysis	
CSC 5870	Computer Graphics I	
CSC 6870	Computer Graphics II	
CSC 6991	Topics in Computer Science	
<b>Advanced level course (select one):</b>		<b>3</b>
ECE 7570	Smart Sensor Technology II: Characterization and Fabrication	
CSC 7825	Machine Learning	
CSC 7991	Advanced Topics in Computer Science	
<b>Total Credits</b>		<b>12</b>

### Connected Autonomous Vehicles Track

Code	Title	Credits
<b>Introductory course (select one):</b>		<b>3</b>
CSC 5100	Introduction to Mobility	
CSC/ECE 5280	Introduction to Cyber-Physical Systems (Or)	
<b>Intermediate level courses (select two):</b>		<b>6-7</b>
CSC 5800	Intelligent Systems: Algorithms and Tools	
CSC 6280	Real-Time and Embedded Operating Systems	
CSC 6290	Data Communication and Computer Networks	
ECE 5440	Computer-Controlled Systems	
<b>Advanced level course (select one):</b>		<b>3</b>
CSC 7991	Advanced Topics in Computer Science (Connected Autonomous Vehicles)	

CSC 8260	Seminar in Networking, Distributed Systems and Parallel Systems	
<b>Total Credits</b>		<b>12-13</b>

### Computing and Networking Track

Code	Title	Credits
<b>Introductory course (select one):</b>		<b>3</b>
CSC 5100	Introduction to Mobility	
CSC/ECE 5280	Introduction to Cyber-Physical Systems (Or)	
<b>Intermediate level courses (select two):</b>		<b>6</b>
ECE 5620	Embedded System Design	
CSC 5825	Introduction to Machine Learning and Applications	
CSC 6280	Real-Time and Embedded Operating Systems	
ECE 5650	Computer Networking and Network Programming	
ECE 5995	Special Topics in Electrical and Computer Engineering I	
EET 5720	Computer Networking Applications	
CSC 6290	Data Communication and Computer Networks	
CSC 6991	Topics in Computer Science	
CSC 5270	Computer Systems Security	
CSC 5830	Computational Modeling of Complex Systems	
<b>Advanced level course (select one):</b>		<b>3</b>
CSC 7991	Advanced Topics in Computer Science	
CSC 8260	Seminar in Networking, Distributed Systems and Parallel Systems	
ECE 7995	Special Topics in Electrical and Computer Engineering II	
CSC 7825	Machine Learning	
CSC 7270	Advanced Computer Security	
<b>Total Credits</b>		<b>12</b>

### Control and Robotics Track

Code	Title	Credits
<b>Introductory course (select one):</b>		<b>3</b>
CSC 5100	Introduction to Mobility	
CSC/ECE 5280	Introduction to Cyber-Physical Systems (Or)	
<b>Intermediate level courses (select two):</b>		<b>8</b>
ECE 5425	Robotic Systems I	
ECE 5440	Computer-Controlled Systems	
ECE 5470	Control Systems II	
<b>Advanced level course (select one):</b>		<b>4</b>
ECE 7420/ ME 7590	Nonlinear Control Systems	
ECE 7430	Discrete Event Systems with Machine Learning	
ECE 7440	Dynamic Systems and Optimal Control	
<b>Total Credits</b>		<b>15</b>

### Smart Transportation Track

Code	Title	Credits
<b>Introductory course (select one):</b>		<b>3</b>
CSC 5100	Introduction to Mobility	
CSC/ECE 5280	Introduction to Cyber-Physical Systems (Or)	
<b>Intermediate level courses (select two):</b>		<b>6-7</b>
CE 5995	Special Topics in Civil Engineering I	
CE 7995	Special Topics in Civil Engineering II	
CSC 5825	Introduction to Machine Learning and Applications	

Advanced level course (select one):		3-4
ECE 7440	Dynamic Systems and Optimal Control	
CSC 7825	Machine Learning	
CSC 7991	Advanced Topics in Computer Science	
<b>Total Credits</b>		<b>12-14</b>

## Smart Grid Track

Code	Title	Credits
Introductory course (select one):		3
CSC 5100	Introduction to Mobility	
CSC/ECE 5280	Introduction to Cyber-Physical Systems (Or)	
Intermediate level courses (select two):		7-8
ECE 5430	Electric Energy Systems Engineering	
ECE 5330	Modeling and Control of Power Electronics and Electric Vehicle Powertrains	
CSC 5825	Introduction to Machine Learning and Applications	
Advanced level course (select one):		3-4
ECE 7440	Dynamic Systems and Optimal Control	
CSC 7825	Machine Learning	
ECE 7860	Operation and Control of Modern Power Systems	
<b>Total Credits</b>		<b>13-15</b>

## Smart Health Track

Code	Title	Credits
Introductory course (select one):		3
CSC 5100	Introduction to Mobility	
CSC/ECE 5280	Introduction to Cyber-Physical Systems (Or)	
Intermediate level courses (select two):		7-8
ECE 5575	Introduction to Micro and Nano Electro Mechanical Systems (MEMS/NEMS)	
CSC 5825	Introduction to Machine Learning and Applications	
BME 6480	Biomedical Instrumentation	
ECE 6570	Smart Sensor Technology I: Design	
ECE 7570	Smart Sensor Technology II: Characterization and Fabrication	
Advanced level course:		3
CSC 7825	Machine Learning	
<b>Total Credits</b>		<b>13-14</b>

# Sustainable Engineering (Graduate Certificate)

Admission to this program is contingent upon admission to the Graduate School (p. 21). Students currently enrolled in a graduate program in the College of Engineering, or students who have already completed a Bachelor's degree in engineering can be admitted to the program. Admission into the graduate program requires a minimum grade point average of 3.0.

Students must complete a minimum of twelve credits of sustainable engineering courses. A maximum of eight credits may be counted towards both this certificate program and a related M.S. or Ph.D. program. All requirements must be completed within three years with a minimum 3.0 g.p.a. required in the certificate coursework. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Engineering (p. 134).

Code	Title	Credits
Required Courses		
CHE 6100	Introduction to Sustainable Engineering	3
CE 6270	Sustainability Assessment and Management	3
Elective Courses		
Select nine credits of the following:		9
CE 5995	Special Topics in Civil Engineering I	
CE 6130	Open Channel Hydraulics	
CE 6150	Hydrologic Analysis and Design	
CE 7995	Special Topics in Civil Engineering II	
CHE 5110	Fundamental Fuel Cell Systems	
CHE 6570	Safety in the Chemical Process Industry	
CHE 6610	Risk Assessment	
CHE 6810	Chemical Engineering Research Project	
IE 6310	Lean Operations and Manufacturing	
IE 6325	Supply Chain Management	
IE 6405/ EVE 5600/AET 5600	Integrated Product Development	
ME 5330	Advanced Thermal Fluid System Design	
<b>Total Credits</b>		<b>15</b>

# College of Fine, Performing and Communication Arts

Dean: Hasan Elahi

The College of Fine, Performing and Communication Arts at Wayne State University provides the highest quality education for practitioners, scholars and consumers in art, art history, communication, dance, music and theatre. This education leads to careers, uses for the arts in other disciplines, enhanced critical abilities, the enrichment of everyday life and the building of new generations of artists, professionals and scholars. Programs of study focus on the integration of theory and practice through the creation, discovery, preservation and transmission of knowledge in fine, performing and communication arts.

The College serves the University and the larger community by creating partnerships that emphasize its own rich, diverse curriculum, interdisciplinary studies, reciprocal professional interaction and outreach activities appropriate to each area of work. Special emphasis is placed on forging alliances with local, state and national constituencies such that the College is both a leader and a resource providing expertise, information and guidance.

Within an appropriate and attractive academic environment the College promotes an atmosphere conducive to intellectual and artistic growth, risk-taking and personal and professional development at all levels in both individual and collaborative endeavors. This environment also assists the College in its role as a national center for creative, research and teaching excellence.

As the cultural gateway of the University, the College provides public events and curricular offerings that nurture creative development, enrich aesthetic values and sensitivity, heighten awareness of the arts experience and reflect the disciplinary diversity of its areas of study. Cultural, racial, ethnic and gender diversity is an important commitment in public events and educational efforts.

Ultimately, the mission of the College is the integration of theory and practice through the creation, discovery, preservation and transmission of knowledge in the fine, performing and communication arts.

**Campus Resources:** Traditional courses of study are augmented by a variety of performance and presentation resources considered integral to many of the creative programs. Included in these are the Hilberry Gateway theatre, the Symphonic Band and University Orchestra, plus exhibitions in the Elaine L. Jacob Gallery, which features national and international artists and designers, and the Art Department Gallery, all of which usually features work created by students, faculty, and alumni. These are only a few of the campus resources that are especially important for majors in the College. A more comprehensive listing can be found under each of the specific departments.

**Detroit Resources:** The proximity of the Wayne campus to institutions of the Detroit Cultural Center (which includes the Detroit Institute of Arts, the Museum of Contemporary Art Detroit, the Detroit Public Library, the Charles Wright Museum of African American History, Michigan Opera Theatre and Orchestra Hall, among other institutions) provides further unique and enriching benefits for students; professional staff members of these institutions often serve as adjunct faculty in College programs. Nearby, too, are major print and electronic communications resources that similarly provide both adjunct faculty and professional assistance to other programs in the College.

**Accrediting Agencies:** Programs in the Music Department are accredited by the National Association of Schools of Music. The Public Relations program offered by the Department of Communication is accredited by the Public Relations Society of America.

# Academic Regulations for the College of Fine, Performing, and Communication Arts

For complete information regarding the academic rules and regulations of the University, students should consult the Graduate School (p. 24). The following additions and amendments pertain to the College of Fine, Performing and Communication Arts.

## Admission

Admission to these program in the College of Fine, Performing and Communication Arts is contingent upon admission to the Graduate School (p. 21).

In the selective admission of graduate students, preference is given to those students who have achieved superior undergraduate scholastic records and who evidence superior artistic abilities. If a student's undergraduate preparation is considered deficient for advanced work in his/her major field, additional work may be required at the undergraduate level. All prerequisite credits must be earned prior to or concurrent with the first graduate credits. Certain degrees have additional requirements as stated in the following pages.

## 'AGRADE' (Accelerated Graduate Enrollment Program)

**Accelerated Graduate Enrollment:** Some departments of the College permit academically strong majors to apply for admission into the College's 'AGRADE' program. 'AGRADE' procedures enable qualified seniors in the College of Fine, Performing and Communication Arts to enroll simultaneously in the undergraduate and graduate programs of the College and apply up to a maximum of sixteen credits towards both a bachelor's and master's degree in the major field. Some programs permit less than the maximum number of credits to be applied so check with the major department.

Qualified students may apply for the AGRADE program no earlier than the semester in which ninety credits are completed. Applicants must have an overall grade point average of 3.5 and not less than a 3.6 grade point average in the major courses already completed.

For more details about the 'AGRADE' program, contact the Graduate Director of the major department.

## Graduate Scholarship

Graduate degrees are conferred not merely upon the completion of a prescribed number of courses nor necessarily after a given period of residence, but rather in recognition of each candidate's outstanding ability and high attainments as evidenced in all course work, research, scholarly writing, examinations, personal fitness for a chosen profession, and promise of professional competence.

## Graduate Degree Requirements

The Graduate School sets the general requirements for graduate degrees. In addition to these and to the information below, other requirements are specified by the individual graduate departments. Students should consult the program and requirements of the departments in which they plan to major.

Candidacy is an advanced status that is recommended by the student's advisor and authorized by the Graduate School upon evidence of the applicant's superior scholarship, appropriate personal qualities and promise of professional competence. Admission as an applicant does

not assure acceptance as candidate for a degree. Also, candidacy is a necessary but not sufficient requirement for graduation.

To be eligible for candidacy, the student must file an official, approved Plan of Work. The Plan of Work should provide for effective concentration in a major field, with proper supporting courses in related fields. All master's applicants should file the Plan of Work with their respective department's Graduate Officer. In preparing a Plan, students should evaluate with care their personal and professional objectives as well as all degree and departmental requirements. Normally, students enrolled in master's degree programs are expected to file a Plan of Work by the time the equivalent of eight to twelve graduate credits have been earned. In the Master of Fine Arts program, however, the Plan of Work should be filed by the time the equivalent of fourteen to eighteen credits have been earned. Candidacy must be authorized by the time twelve to eighteen graduate credits have been earned (dependent upon the applicant's degree program) or subsequent registration may be denied. Plans are filed with the department's Graduate Officer. Once the Plan of Work has been approved, the form to change the student's classification from 'applicant' to 'candidate' will be processed by the department Graduate Officer.

Ph.D. applicants should file the Plan of Work with the Graduate School, when approximately forty credits beyond the baccalaureate degree have been earned. In addition to filing the Plan, the student must have passed the Final Qualifying Examination (written and oral), and must have submitted and received the Graduate Dean's approval on the Dissertation Outline before the doctoral committee will recommend candidacy.

**Commencement:** Students are required to file an Application for Graduation online through Academica no later than the end of the fourth week of classes in the intended term of graduation. Information concerning commencement announcements, caps and gowns, invitations, tickets, time and place, assembling and other relevant items will be sent via email to graduates prior to the event. Candidates for advanced degrees are requested and expected to attend the commencement at which the University confers upon them the honor of the degree earned.

## Master's Degree Requirements

The Master of Arts and Master of Music programs range from 30 to 32 credits under one of the following plans:

**Plan A:** In addition to coursework, a thesis is required with registration in the department's Thesis Direction course.

**Plan B:** In addition to coursework, a three-credit essay is required with registration in the department's Essay course..

**Plan C:** Coursework only. The essay or thesis is not required for this plan; however, a department may require a final comprehensive examination. Students should consult an advisor for details.

These requirements vary slightly depending on the department and major curriculum; students should see the degree programs outlined in the following pages for specific information.

**COURSE REQUIREMENTS:** At least twenty-four credits must be taken in residence. At least six credits in the major field, in addition to the essay or thesis, must be in courses open only to graduate students (7000 and above).

## Master of Fine Arts Degree Requirements

In the Master of Fine Arts degree programs, the minimum requirement is sixty graduate credits under Plans A or C as follows:



**Plan A (Studio Art):** In addition to coursework, a thesis is required.

**Plan C (Theatre and Dance):** Coursework only.

For specific requirements, students should consult the Art and Art History or Theatre departmental sections of this bulletin.

All M.F.A. degree requirements must be completed within three years.

## Doctoral Degree Requirements

Candidates for the doctoral degree must complete ninety credits beyond the baccalaureate degree including thirty credits of dissertation direction. The thirty credit dissertation registration requirement is fulfilled through registration in the courses 9991, 9992, 9993, and 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

## Examinations (Ph.D.)

**Preliminary Qualifying Examinations:** Responsibility for the requirement of a preliminary qualifying examination is vested in the graduate faculty of each department and specifically its committee on doctoral study. Accordingly, each committee may require this examination of all of its candidates or of any candidate at any time it may determine prior to the final qualifying examination.

**Final Qualifying Examination:** The final qualifying examination is required of each applicant. The applicant may request his/her doctoral committee to authorize the final qualifying examination after an approved Plan of Work has been filed with the Graduate School, AND after the Dean of the Graduate School has approved the Dissertation Outline. The examination will be in part written and in part oral. When this examination has been passed, the applicant will be advanced to the status of 'doctoral candidate'.

**The Written Qualifying Examination** will cover the applicant's major and minor areas and may include such other related matters as the doctoral examining committee may prescribe. Within thirty days after the written examination has been passed, the oral qualifying examination will be conducted by the doctoral examining committee, in the presence of the chairperson of the departmental committee on doctoral study or his/her designee. This examination will relate to the subject matter of the written examination, the applicant's major and minor areas and other pertinent matters.

If an examining committee does not certify that the applicant has been passed in either the written or oral examination, it must make specific recommendations with reference to admitting the applicant to a second examination and specify any additional work that should be completed prior to such an examination. If a second examination is held, it must be scheduled within one calendar year and shall be considered final.

The student's doctoral committee is selected at the time the doctoral Plan of Work is prepared. At this time, and upon consultation with the chairperson of the student's doctoral committee, a member outside of the student's major department is appointed to the committee and is expected to meet as a member of the student's committee while the research and preparation of the dissertation are in process. He/ she, along with all members of the committee, will also be present at the final oral presentation. The chairperson of the student's committee files a brief report to the Graduate School detailing the conduct of the oral presentation.

## Essays, Theses, and Dissertations

There is no prescribed form for the essay. Title page format as given in the Graduate School's Guide for Preparing Theses and Dissertations may

be used for essays. Standard style manuals may be consulted for form, as desired by the student or department.

One copy of the essay should be approved and signed by the advisor. This copy will reside with the department.

The thesis or dissertation *must be an original work, either in or definitely related to the student's major area of specialization*. If proper standards or quality, objectivity, originality, and independence are maintained, the candidate may use data, which he/she has derived from his/her University research. Neither the results of the research nor the publication of findings can be restricted by any non-university agency nor can they be published prior to acceptance by the Graduate School, unless prior approval of such publication has been secured from both the advisor and the Graduate School. Advisors have primary responsibility for approval of the essay or thesis, but every member of a doctoral committee must read, approve and sign the dissertation.

A thesis student may not begin work on a manuscript until he/she has submitted an approved Plan of Work and outline form. He/she may then register for the thesis or dissertation and pay regular fees in the same manner as for all other course work.

Master's degree candidates under the essay plan register for the course numbered 7999, Master's Essay Direction, in the department of their major.

Master's candidates under the thesis plan register for the course numbered 8999 in the department of their major. This course is entitled *Master's Thesis Research and Direction* and must be elected. Ph.D. candidates register for thirty credits in their major field in the courses numbered 9991-9994, as outlined above, under 'Doctoral Degree Requirements.' All credit used toward meeting dissertation requirements must be earned in this course.

The publication and dissemination of research findings will not be restricted by the University after the manuscript has been received and accepted by the Graduate School.

# Art, Art History, and Design

Office: 150 Art Building, 450 Reuther Mall; 313-577-2980

Chairperson: Lauren Kalman

Website: <https://art.wayne.edu/>

## Our Mission

The James Pearson Duffy Department of Art, Art History, and Design is a community of students, staff, and faculty that advances the study and practice of art history, design, and fine art.

## Our Vision

We sustain and further these disciplines through rigorous research, creative production, instruction, and community engagement within the context of an urban research university.

To realize this vision the department will:

1. Offer relevant and innovative programs grounded in faculty expertise
2. Support the research and creative activity of students and faculty
3. Develop lectures, workshops, exhibitions, and events that engage diverse audiences
4. Cultivate a supportive and collaborative environment for critical thinking, visual literacy, and creative practice
5. Provide safe and professional facilities for our students, staff, and faculty
6. Promote the importance of an arts education within a university context

The James Pearson Duffy Department of Art, Art History, and Design is dedicated to the understanding, production and presentation of works of art in all media. It seeks to explore and develop visual literacy as well as technical, critical and conceptual skills. The curriculum combines history, theory, practice and technology with interdisciplinary learning that aims to nurture a balance between technical proficiency, experimentation with new ideas and studying the visual arts as a means of understanding the intellectual and cultural history of humanity. By receiving a comprehensive training in the visual arts within the context of a liberal arts education, students are encouraged to master the various avenues of creative investigation and learning within the Department as well as in other departments of the College and the University at large. Each student is thereby able to progress from fundamentals to creative and intellectual maturity and given the tools of professionalization in a variety of different areas while immersed in the rich diversity of cultural and research opportunities offered by the University as a whole.

## Academic Work Retention Policy

The Department reserves the right to retain, for its permanent collection, the work submitted by students for credit in any course, and to exhibit or reproduce such work in University publications. Students are encouraged to retain work as they proceed through their program, so as to have at least twenty works for a final portfolio review and demonstration of progress.

## Program Offerings

### Studio Art

Faculty Graduate Officer: Heather Macali, Associate Professor

Email: [graduateartanddesign@wayne.edu](mailto:graduateartanddesign@wayne.edu)

The James Pearson Duffy Department of Art, Art History, and Design offers the Master of Arts with a major in Art (M.A.) and the Master of Fine Arts with a major in Art (M.F.A.).

- Art (M.A.) (p. 188) — The M.A. program in the James Pearson Duffy Department of Art, Art History, and Design is a multidisciplinary program where students pursue a wide range of media through studio coursework. Students may use the M.A. degree to develop technical skills and a portfolio of work as a pathway to an M.F.A. degree or to advance in an existing career or industry.
- Art (M.F.A.) (p. 191) — The M.F.A. program in the James Pearson Duffy Department of Art, Art History, and Design is a multidisciplinary program where students pursue a wide range of media in an intensive studio environment. Students will have the ability to work deeply within one discipline or more broadly across media. Students develop critical capacities to advance their practice-based research and situate their work within larger cultural contexts.

## Art History

Faculty Graduate Advisor: Margaret Franklin, Associate Professor of Art History

Email: [ai4589@wayne.edu](mailto:ai4589@wayne.edu) ([ai4589@wayne.edu?subject=Art%20History%20Graduate%20Program](mailto:ai4589@wayne.edu?subject=Art%20History%20Graduate%20Program))

- Art History (M.A.) (p. 195)

## How to Apply:

Complete the Wayne State online graduate application (<https://gradschool.wayne.edu/admissions/>). For admission consideration, submit the completed application, official transcripts, application fee, and other materials as directed.

## Deadlines

The art department has two application deadlines: October 1 (for the M.A. programs for study beginning in January) and January 15 (for the M.A. and M.F.A. programs for study beginning in August). Applications for M.F.A. studies will only be accepted for the January 15 deadline. The department deadlines supersede any other published deadline.

## Graduate Teaching Assistantships

The department deadline for Graduate Teaching Assistantships (GTAs) is January 15. The department has six GTA's. Current Students should apply by following the directions on the Graduate Teaching Assistantship (GTA) Application Form (<https://forms.wayne.edu/5e7a04184a59b/>).

Prospective Students should follow the directions in your graduate program application. To apply for a GTA your application will require the completion of a supplemental written statement summarizing the GTA applicant's purpose and goals. (no more than 500 words).

For all applications completed by the deadline, the applicant will receive a notification letter stating the department's decision.

## Art (M.A.)

### Eligibility

The applicant must hold a Bachelor of Fine Arts (B.F.A.) degree or another degree and equivalent course work and/or experience. These requirements can be obtained from the Graduate Officer of the department: [graduateartanddesign@wayne.edu](mailto:graduateartanddesign@wayne.edu).

Note: The Graduate Record Examination (GRE) is not required for admission.

## Admission Requirements

Admission to the Master of Arts program is an online process. Admission to this program is contingent upon admission to the Graduate School

(p. 21). Admission to the Graduate School means only that the applicant has satisfied the academic standards required for general University Graduate admission.

The applicant must hold a Bachelor of Fine Arts degree or another degree and equivalent course work. Admission by the Graduate School of the University means only that the applicant has satisfied the academic standards required for general admission. Final admission to the Master of Arts program is determined by the department and based on the following ranked criteria.

- Portfolio
- Personal Interview
- Academic Record and Experience
- Reference Letters
- Statement of Intent
- Supporting Materials

The final admission decision rests with the department's faculty admissions committee.

### Composition of Faculty (Admissions Committee)

Admissions committees are composed of three (3) full-time faculty minimum. Admission offers begin with a simple majority of positive votes from committee members. A positive vote should be understood as an agreement to serve as a graduate committee member.

### Application Procedure

If an admissions interview is scheduled, the applicant should expect to present actual examples of his/her/their recent work (unless this is not feasible due to size). The applicant should expect to speak and to answer questions concerning his/her/their work, experience and plans for graduate study. The admissions committee will make one of the following decisions:

- **ADMIT**
- **ADMIT WITH SPECIAL REQUIREMENTS:** The applicant's preparation is acceptable but requires certain specific courses to be taken. These courses may or may not carry graduate credit depending on the level specified by the committee.
- **PRE-MASTERS:** The applicant's preparation is not sufficient for admission but shows promise. The committee will outline the specific courses that must be taken prior to another admissions interview. These courses are taken at the 5000 level and graduate tuition is paid. If the student is subsequently admitted, up to 9 credits may be accepted as graduate credit.
- **DO NOT ADMIT:** The applicant lacks sufficient preparation for the program. Frequently, Post-Bachelor's status is recommended. However, Post-Bachelor's course work cannot be applied towards any degree.

### Advisor

At the time of admission, the student will be assigned an Advisor by the admissions committee. The Advisor will explain the program and help the student plan the course of study. It is the student's responsibility to know the program and to maintain close contact with the Advisor, in order to keep him/her/them informed as to the student's progress. In addition, a graduate advising form is available from the department to help with matters such as the plan of work, the graduate essay and other specifics.

### Studio Space

The department is not able to provide individual studio space for students in the Master of Arts program. Individual disciplines, however, make every

effort to accommodate the needs of their graduate students. Please consult with the Advisor to see what space, if any, is available.

## Transfer of Credits

Up to 4 credits can be transferred to the M.A. program at the time of admission from any graduate program outside of WSU; the number of transfer credits accepted is based on departmental approval. A student may receive up to three (3) credits from another program during the course of his/her/their course of study at WSU. The student must submit a request form and provide an official transcript to the Graduate Officer; the student's review committee must agree to accept this work.

## Credit by Examination

No credits toward graduate degrees may be obtained by examination.

## Role of the M.A. Advisor

The Advisor's responsibilities are to explain the program and help the student plan her/his/their course of study. Aspects of the Advisor's role include the following points.

The Advisor must:

- Be in the area of concentration desired by the student;
- Be appointed by the student's admissions committee. (Change of Advisor must be approved by both a student's current and requested advisor);
- Approve a student's list of review committee members each semester (student must submit a list to the Advisor), sending the list to the area coordinator, who sends the list on to the graduate officer;
- Approve changes in a student's review committee, sending the list to the area coordinator, who sends the list on to the graduate officer;
- Moderate a student's reviews (including time-keeping for each section of the review);
- Approve and supervise a student's M.A. Essay and submit the results to the graduate officer;
- Approve a student's plan of work;
- Approve any electives that the student seeks to take outside of the department;
- Approve a student's course schedule each semester;
- Arrange for studio space, if the student's concentration provides studio space.

It is also the student's responsibility to know the program and to maintain close contact with the Advisor, in order to keep him/her/their informed as to the student's progress.

## Spring / Summer Semester

Master of Arts course work may be done during the Spring/Summer semester only if courses are offered at the appropriate level and are taught by faculty who have been approved to teach graduate courses.

## Graduate Advising

The student must meet with his/her/their Advisor every semester to review, plan, and approve the student's course of studies. If desired, the Graduate Officer is also available for advising.

## Financial Aid and Scholarships

For information concerning financial aid and scholarships, please contact the WSU Financial Aid office. Applications for graduate teaching assistantships can be obtained from the Department office.

A minimum of thirty credits in art, including at least three credits of Graduate Studio, six credits in electives, three credits in art history, and eighteen credits in Studio Electives. All course work must be completed in accordance with the regulations of the Graduate School and the College of Fine, Performing, and Communication Arts.

This program is offered under the following option:

**Plan C:** Thirty credits in coursework.

**Candidacy:** All graduate students begin their work as Master's Applicants. After twelve credits have been completed, a Plan of Work must be signed by the faculty advisor and submitted to the Department Graduate Officer. If the student has maintained a 3.0 grade point average and the Plan is accepted, his/her status is changed to Master's Candidate.

## Plan of Work (POW)

All graduate students begin their work as Masters Applicants. After 12 credits have been completed successfully (B average or better) a Plan of Work is filed with the College of Fine, Performing and Communication Arts. If approved, the student's status is changed to Masters Candidate. The Plan of Work lists courses taken and projects the remainder of the program and anticipated length of the program. Failure to submit the Plan of Work during the semester in which the student *registers* for his/her/their 12th credit may result in an academic "hold" which will prevent further registration. The University strongly enforces this policy, so the student must not neglect this procedure. The Plan of Work is done in conjunction with the Advisor. The Plan of Work must be signed by the student's Advisor, who then forwards the Plan of Work to the Graduate Officer.

If the student wishes to change his/her/their course of study after the Plan of Work has been filed, another Plan of Work with the "Change of Plan of Work" line marked should be filed. The POW form is available online or in the art department office.

Any deviations from this course of study requires the approval of the faculty Graduate Committee in Art. Such requests should be addressed in writing to the Graduate Officer.

## Reviews

As a requirement for the degree, the Master of Arts student must meet a faculty review committee at the end of their final semester of graduate study. The *student* must keep his/her/their Advisor informed as to the student's progress so that the reviews can be scheduled at the appropriate times.

## Composition of the Faculty Admission Committee

Admissions committees are composed of three (3) full-time faculty minimum. Admission offers begin with a simple majority of positive votes from committee members. A positive vote should be understood as an agreement to serve as a graduate committee member. Graduate advisors must be drawn from the student's primary discipline.

## MA Advisor

The student should select a permanent advisor by 14th #week of their first semester, with agreement from the newly selected faculty and formal approval from the student's current advisor and graduate officer. The advisor must align with the student's primary discipline. In the case of Interdisciplinary Art focus, a student may choose to work with any full-time faculty member within the department.

## Composition of the Review Committee

Graduate Student Review Committees are composed of three (3) full-time faculty minimum. Each committee includes full-time faculty members,

one of whom is the Advisor. The student may add or replace one faculty member per term with the support of his/her/their Graduate Advisor. Requests for graduate committee adjustments should be made to the Graduate Officer by the 3rd week of the term. Committee membership may also be adjusted according to faculty schedules and assignments.

## Procedure

Reviews are normally one hour in length. The student is expected to present all work done during the period under review, as well as answer questions. The following format is used for reviews.

1. **Opening Statement (10 minutes):** The student should prepare a brief presentation about the works under review, focusing on those issues that he/she/they wish(es) the committee to address.
2. **Discussion Period (up to 30 minutes):** An open discussion, moderated by the Advisor, addressing the works under review and focusing on the issues raised by the student during the opening statement.
3. **Formal Action (10 minutes):** Following the discussion, the student will be requested to leave the room so that the committee can discuss and vote a formal action.
4. **Feedback (10 minutes):** The student is invited back to rejoin the review and will be apprised of the action taken. The following is a list of formal actions that can be taken by the review committee.
5. **Pass:** Work is proceeding without any problems.
6. **Pass With Warning:** Work is only satisfactory. An additional review is called for at a time interval to be determined by the review committee.
7. **Hold:** Work is not acceptable. Student may not register for additional course work until the student has met with the review committee at a specified time.
8. **Dismiss:** Work is failing. Graduate candidacy and standing is revoked.

## Graduation Requirements

When registering for the final semester, the student must file for his/her/their degree at the University Graduation Office. The student must file prior to the first day of classes of his/her/their final semester. Once the student has filed for a degree, the student is then a Candidate for Graduation.

### Image Portfolio

Prior to graduation, the candidate must provide his/her/their advisor with a portfolio of 15 images of works executed during graduate studies. Images are due by the end of the student's final semester and are used for program assessment. These images will also be added to the permanent collection of the Department's visual resource center.

## Disciplines

- Ceramics
- Digital Art
- Drawing
- Fashion Design
- Fibers
- Graphic Design
- Industrial Design
- Interior Design
- Metalsmithing
- Painting
- Photography
- Printmaking
- Sculpture



## Course List

Code	Title	Credits
Studio Electives		18
7000-level or above studio course#in the Department of Art & Art History (5000-level and above considered with approval from advisor). See list below.		
Electives		6
5000-level or above course#in any department or college#.		
Art History		3
5000-level or above. See list below.		
ART 8992	Graduate Studio	3
<b>Total Credits</b>		<b>30</b>

## Studio Electives

Code	Title	Credits
ACR 7550	Graduate Problems in Ceramics	3
AFA 7850	Seminar	3
AFA 7990	Directed Study	1-4
ADR 7060	Graduate Problems in Drawing and Painting	3-9
ADR 7070	Graduate Life Drawing	3
ADR 7080	Landscape Drawing	3
AFI 7650	Graduate Problems in Weaving	3
AFI 7660	Graduate Problems: Fabric Printing and Dyeing	3
AGD 7250	Graduate Problems in Graphic Design	3-9
AID 7300	Graduate Industrial Design	3-9
AME 7600	Graduate Study in Metal Arts	3
APA 7000	Graduate Oil Painting	3
APA 7060	Graduate Problems in Drawing and Painting	3-9
APA 7080	Landscape Painting	3
APA 7110	Graduate Watercolor Painting	3
APA 7130	Graduate Problems in Figure Painting: Water Media	3
APA 7140	Graduate Problems in Figure Painting: Oil Media	3
APH 7400	Graduate Photography	3-9
APR 7470	Graduate Photo Processes for Printmaking	3
APR 7480	Graduate Intaglio	3
APR 7490	Graduate Lithography	3
APR 7500	Graduate Serigraphy	3
APR 7510	Graduate Relief and Experimental Printmaking	3
ASL 7150	Graduate Sculpture	3

## Art History

Code	Title	Credits
AH 5210	Hellenistic Art	3
AH 5250	Ancient Rome	3
AH 5260	Classical Greek Art	3
AH 5270	Roman Painting and Sculpture	3
AH 5310	The Ancient City of Athens	3
AH 5450	Art and Architecture in the High Middle Ages	3
AH 5500	Early Renaissance in Italy	3
AH 5510	High Renaissance and Mannerism in Italy	3
AH 5520	Art of Renaissance Venice	3
AH 5560	Special Topics	3
AH 5570	Performance Art of the Americas	3
AH 5710	Trends in Nineteenth Century Art	3

AH 5715	Modernism: Nineteenth and Twentieth Centuries	3
AH 5720	Twentieth Century Art	3
AH 5735	Art 1900-1945	3
AH 5755	Gender and Race in Visual Culture	3
AH 5780	Topics in Twentieth-Century Art	3
AH 5855	Museum Practicum	3
AH 5990	Directed Study	1-3
AH 5997	Seminar	3

## Art (M.F.A.)

### Eligibility

The applicant must hold a Bachelor of Fine Arts (B.F.A.) degree or another degree and equivalent course work and/or experience. The M.F.A. degree program demands superior qualification, potential, and commitment as an artist. These requirements can be obtained from the Graduate Officer of the department: [graduateartanddesign@wayne.edu](mailto:graduateartanddesign@wayne.edu).

Note: The Graduate Record Examination (GRE) is not required for admission.

### Admission Requirements

Admission to the Master of Fine Arts program is an online process. Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission to the Graduate School means only that the applicant has satisfied the academic standards required for general University Graduate admission.

The applicant must hold a Bachelor of Fine Arts degree or another degree and equivalent course work. Admission by the Graduate School of the University means only that the applicant has satisfied the academic standards required for general admission. Final admission to the Master of Fine Arts program is determined by the department and based on the following ranked criteria.

- Artist Statement
- CV/Resume
- Image List
- 20 Images (specific criteria must be met)
- 3 Letters of Recommendation
- Link to Work or Time-Based Media (Optional)
- Statement of Intent
- Personal Interview

The final admission decision rests with the department's faculty admissions committee.

Admission to the Master of Fine Arts degree program is possible by the following three methods.

- **Direct Admission with the BFA** - If the applicant is of clearly superior quality and preparation, direct admission is possible. However, applicants are often initially placed in the M. A. program. At the earliest appropriate time, transfer to the M. F. A. program may be recommended.
- **Direct Admission with the MA Degree** - Any individuals having already completed the M.A. degree in art (a studio discipline) may apply directly for admission to the M.F.A. program. An admission committee will determine qualifications and admissibility.
- **Transfer from the WSU MA Program** - Once in the M.A. program, the student is eligible for transfer to the M.F.A. at his/her/their first review (12 credits) or second review (24 credits). If, at either of these



reviews, the faculty review committee determines that the work is approaching M.F.A. level, an invitation will be issued to meet the larger M.F.A. admission committee. If admitted, it is possible to transfer up to 15 credit hours of M.A. studio course work; the number of transfer credits accepted is at the discretion of the student's M.F.A. admissions committee. (Art History credits transfer automatically, as does the M.A. Seminar- the student then must take the MFA 2 Seminar). As with the M.A. program, direct M.F.A. admission is a two-part process. The applicant must apply to the Graduate School of the University and the Department of Art & Art History.

Admission by the Graduate School means only that the applicant has satisfied the academic standards required for general graduate admission. The final decision rests with the department's faculty admission committee.

## Composition of Faculty (Admissions Committee)

Admissions committees are composed of three (3) full-time faculty minimum. Admission offers begin with a simple majority of positive votes from committee members. A positive vote should be understood as an agreement to serve as a graduate committee member.

## Application Procedure

At the time of application, the prospective student must submit a portfolio of twenty (20) images of recent work, a list or descriptions of images, a statement of intent, a curriculum vita (CV), and three (3) letters of recommendation through the application upload process. These are examined by the faculty admissions committee, along with the applicant's academic record, in order to make a preliminary admissions decision. If this decision is positive, a formal admissions interview may be scheduled, except in cases where distance makes it impossible. The applicant will be informed as to the date and place for the meeting.

If an admissions interview is scheduled, the applicant should expect to present 10–20 actual examples of his/her/their recent work (unless this is not feasible due to size). The applicant should expect to speak and to answer questions concerning his/her/their work, experience and plans for graduate study. The interview normally is scheduled for approximately 45 minutes.

The admissions committee will make one of the following decisions.

- **ADMIT TO MFA:** Note: any applicant transferring from the WSU M.A. program will be informed as to whether he/she/they will be permitted to transfer credits and, if so, how many.
- **ADMIT TO MA:** The faculty admissions committee determines whether the M.A. program is a more appropriate place for the applicant to begin graduate studies. Once in the M.A. program, a student can again apply for admission to the M.F.A.
- **DO NOT ADMIT:** The applicant lacks sufficient preparation for the program.

## Advisor

At the time of admission the student will be assigned an initial Advisor by the admissions committee. The student selects a permanent Advisor during his/her/their first semester; both the initial and permanent advisors must agree to the student's selection. The Advisor will explain the program and help the student plan the course of study. It is the student's responsibility to know the program and to maintain close contact with the Advisor, in order to keep him/her/them informed as to the student's progress.

## Studio Space

The department ordinarily provides individual studio spaces to all M.F.A. students. These are assigned on the basis of seniority, area

concentration, and space availability. Since graduation provides a constant turnover of studios, anyone desiring to upgrade his/her/their assignment may do so by requesting, in writing, a new studio. These requests should be addressed to the Graduate Officer. If, in the opinion of the faculty, a student is not sufficiently utilizing his/her/their studio, a request to vacate may be made. Such a request can be appealed to the department's Graduate Committee in Art.

## Transfer of Credits

Up to 4 credits can be transferred to the M.F.A. program at the time of admission from any graduate program outside of WSU; the number of transfer credits accepted is based on departmental approval. A maximum of 15 credits can be transferred from the WSU M.A. program to the M.F.A. program; the number of transfer credits accepted is at the discretion of the applicant's admissions committee. Once enrolled in the M.F.A. program, a student may petition the department's Graduate Committee in Art to accept up to three (3) credits from educational institutions outside of WSU. The student must submit a formal request, signed by his/her/their advisor, and a copy of the transcripts for the coursework credits requested to the Graduate Committee in Art.

## Credit by Examination

No credits toward graduate degrees may be obtained by examination.

## Role of the MFA Advisor

The Advisor's responsibilities are to explain the program and help the student plan his/her/their course of study. Aspects of the Advisor's role include the following points.

### The Advisor must:

- Be in the area of concentration desired by the student;
- Be appointed by the student's admissions committee (change of advisor must be approved by a student's current and requested advisor);
- Approve a student's list of review committee members each semester (student must submit a list to the advisor), sending the list to the area coordinator, who sends the list on to the graduate officer;
- Approve changes in a student's review committee, sending the list to the area coordinator, who sends the list on to the graduate officer;
- Moderate a student's reviews (including time-keeping for each section of the review);
- Approve a student's plan of work;
- Approve any electives that the student seeks to take outside of the department;
- Approve a student's course schedule each semester.

It is also the student's responsibility to know the program and to maintain close contact with the advisor, in order to keep him/her/them informed as to the student's progress.

## Spring / Summer Semester

No M.F.A. coursework is formally offered during the Spring/Summer semester. However, some courses with graduate level credit are occasionally available in the Spring/Summer term. Any M.F.A. student who might consider enrolling in such courses should first check with his/her/their advisor.

## Graduate Advising

The student must meet with his/her/their Advisor every semester to review, plan, and approve the student's course of studies. If desired, the Graduate Officer is also available for advising.

## Extensions

The Master of Fine Arts program must be completed in three academic years. Any M.F.A. student wishing to extend his/her/their program beyond this limit must obtain permission from the Graduate Committee in Art. If a student should drop out for a period longer than one semester, he/she/they must seek reinstatement, also from the Graduate Committee in Art. That committee may require a special admissions meeting with the student prior to the resumption of work.

## Financial Aid and Scholarships

For information concerning all available financial aid and scholarships, please consult the WSU Financial Aid office. Applications for graduate teaching assistantships (GTAs) are available through the department office.

The Master of Fine Arts degree is offered under the following option:

**Plan A:** Sixty credits in art, including a thesis exhibition held in final semester.

Plan A must be completed within three years. A minimum of sixty credits in art should include twenty credits of Graduate Hours, nine credits of Graduate Seminar, nine credits of Graduate Studio, twelve credits in electives, six credits in art history (one of which is to be contemporary art), and four credits of MFA Thesis. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186).

**Candidacy:** After twelve credits have been completed, a Plan of Work must be signed by the faculty advisor and submitted to the Department Graduate Officer. An applicant becomes a degree candidate only upon recommendation by the graduate review committee.

Full-time attendance is required in the program which requires a minimum of four semesters of study, excluding the summer term. All M.F.A. candidates must also meet the following requirements:

1. Final Review - The student must receive a satisfactory review (S, passing) for the review in their final semester. This review will be held at the student's thesis exhibition.
2. Thesis Exhibition - As a degree requirement, the M.F.A. student must present a final thesis exhibition prior to graduation. All M.F.A. exhibitions are to be held in the WSU Community Art Gallery during the Winter term. The design, presentation, and publicity for the show is done in conjunction with other graduating candidates. The Graduate Officer and the Exhibitions Curator are available to assist with the exhibition.
3. Image Portfolio - Prior to graduation, the candidate must provide his/her advisor with a portfolio of 20 images of works executed during graduate studies including images of the thesis exhibition. Images are due by the end of the student's final semester.
4. Written Thesis Document - The student will produce a thesis, essay, book, or other writing to accompany their thesis exhibition in consultation with their advisor. The writing should be a minimum of eight pages (4000 words) in length. The writing is due by the end of the student's final semester.

This program provides the student with the opportunity for intensive work toward personal artistic goals. The entire graduate staff is available to the student for consultation and instruction.

## Plan of Work (POW)

All graduate students begin their work as Masters Applicants. After 12 credits have been completed successfully (B average or better) a Plan of Work is filed with the College of Fine, Performing and Communication Arts. If approved, the student's status is changed to Masters Candidate. The Plan of Work lists courses taken and projects the remainder of the program and anticipated length of the program. Failure to submit the Plan of Work during the semester in which the student registers for his/her/their 12th credit may result in an academic "hold" which will prevent further registration. The University strongly enforces this policy, so the student must not neglect this procedure. The Plan of Work is done in conjunction with the Advisor. The Plan of Work must be signed by the student's Advisor, who then forwards the Plan of Work to the Graduate Officer. If the student wishes to change his/her/their course of study after the Plan of Work has been filed, another Plan of Work with the "Change of P.O.W." line marked should be filed. The Plan of Work is available online or in the art department office. Any deviations from this course of study requires the approval of the faculty Graduate Committee of the Department. Such requests should be addressed in writing to the Graduate Officer.

## Reviews

The M.F.A. student must meet with a faculty review committee each semester of study. By the 8th week prior to each semester's review, the student must have had a studio visit with each member of his/her/their committee (i.e., the student meets with committee members individually to discuss his/her/their work). Reviews are usually held in the 12th or 13th week of each semester with the dates varying each term. The Graduate Calendar, available in the Department office will list the exact dates for each academic year. (The Final Review is held in the 8th week to facilitate College and University graduation deadlines.)

## Composition of the Faculty Admission Committee

Admissions committees are composed of three (3) full-time faculty minimum. Admission offers begin with a simple majority of positive votes from committee members. A positive vote should be understood as an agreement to serve as a graduate committee member. Graduate advisors must be drawn from the student's primary discipline.

## Composition of the MFA Review Committee

For the students first semester the Graduate Student Review Committee will be comprised of the members of the student's Admission Committee and their first semester advisor will be selected from that Committee. The student should select a permanent committee by 14th week of their first semester, with agreement from the newly selected faculty and formal approval from the student's current advisor and graduate officer. The advisor must align with the student's primary discipline. In the case of Interdisciplinary Art focus, a student may choose to work with any full-time faculty member within the department. Graduate Student Review Committees are composed of three (3) full-time faculty minimum.

## MFA Progress Review

The initial Progress Review takes place during a student's first term in the MFA program and is not a graded review. The student presents to their MFA committee members and a visiting artist or critic the culmination of all work created during the fall semester, (then the 3rd and 5th semesters) including any written material/research projects. The student receives a written summary of the review and an evaluation by committee as: S Satisfactory (pass/fail), U Unsatisfactory (pass/fail). Pass/Fail,

attendance and participation is considered Pass (S). This review is a 0 credit hour gateway.

## MFA Assessment Review

In the winter semester, the student formally presents to their MFA committee members the culmination of all work created during the course of the year, including any written material/research projects. A 500-word artist statement is required and must be submitted to committee members one week prior to reviews. The student is evaluated by committee as: Pass (S) /Pass with Warning (S) /Move to MA program (U)/Dismissal from program (U) (S Satisfactory, U Unsatisfactory). The Assessment Review will also serve as the Department of Art and Art History MFA program assessment. The 6th semester review serves as the final review, and will be held at the student's thesis exhibition. The student must receive a satisfactory review (S, passing) for the review in their final semester.

## Changes in the Review Committee

The student may add or replace one faculty member per term with the support of his/her/their Graduate Advisor. Following the student's first semester, requests for graduate committee adjustments should be made to the Graduate Officer by the 3rd week of the term. Committee membership may also be adjusted according to faculty schedules and assignments.

## Visiting Artist/Critic

Each semester, the Department's Faculty Graduate Committee in Art invites to campus a visiting artist/critic specifically to serve on graduate reviews. This individual attends all M.F.A. reviews and serves without a vote. Recommendations for visiting artist/critic are made to the committee by faculty and graduate students.

## Procedures

Reviews are normally one hour in length. The student may choose to have an open review with other M.F.A. students attending or a closed review with only the review committee. The schedule is prepared by the Graduate Officer, in consultation with the various concentrations. The schedule is distributed and posted several weeks in advance. The following format is followed for reviews.

1. **Opening Statement (10 minutes):** The student should prepare a brief presentation about the works under review, focusing on those issues that he/she/they wish(es) the committee to address.
2. **Discussion Period (up to 30 minutes):** An open discussion, moderated by the Advisor, addressing the works under review and focusing on the issues raised by the student during the opening statement.
3. **Formal Action (10 minutes):** Following the discussion, the student will be requested to leave the room so that the committee can discuss and vote a formal action.
4. **Feedback (10 minutes):** The student is invited back to rejoin the review and will be apprised of the action taken. The following is a list of formal actions that can be taken by the review committee.
5. **Pass:** Work is approved. Consistent level of quality is being maintained.
6. **Pass With Warning:** Work is only satisfactory. The possibility of a Hold or Dismiss exists.
7. **Hold:** Work is unsatisfactory. The student may not register for further course work but should instead concentrate on bringing his/her/their work up to a satisfactory level. A repeat review will be scheduled for the following semester to determine continuance or dismissal.

8. **Return to the Masters of Art Program:** Though acceptable, the work is not at the M.F.A. level. The accumulated degree credits may be applied to the M.A. degree.

9. **Dismiss:** Work is failing. Graduate candidacy and status is revoked.

All actions of a review committee may be appealed in writing to the Graduate Committee in Art. This committee, in conjunction with the Department Chair, may overrule a Review Committee. The student is to receive a copy of the committee's review summary. The student is encouraged to follow-up with committee members after the review for more discussion. The student has the right of access to his/her/their graduate files. Students are welcome to review 8000-level grades and the written summary of their reviews.

## Graduation Requirements

When registering for their final semester, the student must File for Degree at the University Graduation Office. The student must file prior to the first day of classes of her/his/their final semester. Once the student has filed for a degree, the student is then a Candidate for Graduation.

1. **Final Exhibition** (Designate Plan A on the Plan of Work) - As a degree requirement, the M.F.A. student must present a final thesis exhibition prior to graduation. All M.F.A. exhibitions are to be held in the WSU Community Art Gallery during the Winter term. The design, presentation, and publicity for the show is done in conjunction with other graduating candidates. The Graduate Officer and the Exhibitions Curator are available to assist with the exhibition. The M.F.A. student must write an expanded artist's statement, in consultation with the Advisor. The statement will accompany the thesis show. The student will document the exhibition with digital images and submit these along with other selected images from his/her/their graduate career to the Graduate Officer (see no. 3, below).
2. **Final Review** - This summary review is held at the student's thesis exhibition.
3. **Image Portfolio** - Prior to graduation, the candidate must provide his/her/their advisor with a portfolio of twenty images total, including works executed during graduate studies and the thesis exhibition. The images become part of the permanent collection in the Department's visual resource center. The portfolio is due in the Department office no later than two weeks after a student's final exhibition.

## Disciplines

- Ceramics
- Digital Art
- Drawing
- Fashion Design
- Fibers
- Graphic Design
- Industrial Design
- Interior Design
- Metalsmithing
- Painting
- Photography
- Printmaking
- Sculpture

## Course List

Select from the following:

Code	Title	Credits
<b>Graduate Seminar</b>		<b>9</b>
ART 8990	Graduate Seminar	
<b>Graduate Studio</b>		<b>9</b>
ART 8992	Graduate Studio	
<b>Art History</b>		<b>6</b>
5000-level or above contemporary art and 5000-level or above elective. (See list below.)		
<b>Graduate Hours</b>		<b>20</b>
ART 8994	Graduate Hours	
<b>MFA Thesis</b>		<b>4</b>
ART 8996		
<b>Electives</b>		<b>12</b>
<b>MFA Progress Review</b>		<b>0</b>
ART 0890	MFA Progress Review	
<b>MFA Assessment Review</b>		<b>0</b>
ART 0892	MFA Assessment Review	
<b>Total Credits</b>		<b>60</b>

## Art History Elective Courses

Code	Title	Credits
<b>Art History electives select from:</b>		
AH 5210	Hellenistic Art	
AH 5250	Ancient Rome	
AH 5260	Classical Greek Art	
AH 5270	Roman Painting and Sculpture	
AH 5310	The Ancient City of Athens	
AH 5450	Art and Architecture in the High Middle Ages	
AH 5500	Early Renaissance in Italy	
AH 5510	High Renaissance and Mannerism in Italy	
AH 5520	Art of Renaissance Venice	
AH 5560	Special Topics	
<b>20th Century or Contemporary Art History select from:</b>		
AH 5570	Performance Art of the Americas	
AH 5710	Trends in Nineteenth Century Art	
AH 5715	Modernism: Nineteenth and Twentieth Centuries	
AH 5720	Twentieth Century Art	
AH 5735	Art 1900-1945	
AH 5755	Gender and Race in Visual Culture	
AH 5780	Topics in Twentieth-Century Art	
AH 5855	Museum Practicum	
AH 5997	Seminar	

## Art History (M.A.)

### Admission Requirements

An applicant must meet Graduate School requirements, plus these departmental requirements to be considered for admission to the Art History graduate program:

1. An undergraduate or equivalent degree in art history, and a minimum 'B' average in undergraduate art history. Applicants who do not have an undergraduate degree in art history may be asked to take one or two survey courses in the field and/or upper level courses.
2. Three letters of recommendation from persons familiar with the applicant's academic or professional activities and potential, preferably from previous art history instructors. For individuals who

have been out of school for the last 10 years, letters from other professionals who are in a position to assess the applicant's potential for graduate work may be substituted.

3. Three semesters at college level (or equivalent) in an approved language with a 'B' average or better. Applicants may be admitted without having completed this requirement but must complete the requirement as soon as possible.
4. Personal statement (1-2 pages), explaining the applicant's interest in and exposure to art history and the career goals the applicant wishes to pursue.
5. A sample research paper (preferably on a topic in art history)

No course credits earned in making up deficiencies may be counted as program credits required for the degree. Applicants whose overall grade point average is between 2.25 and 3.0 may take the Graduate Record Examination to be considered for admission.

### Application Procedure

Applicants must complete the online Application for Graduate Admission form ([www.gradadmissions.wayne.edu](http://www.gradadmissions.wayne.edu)), including the graduate application fee and an official transcript from each college or university attended, as well as the personal statement and sample research paper. Applicants must arrange for the three letters of recommendation to be submitted online.

Applicants wishing to be admitted for study beginning in the fall semester should submit their application and materials by February 1; for admission to study beginning in the winter semester, the application procedure must be completed by October 1.

All potential applicants are encouraged to visit the campus to discuss the program and their career goals with the Graduate Advisor in Art History. Candidates are also advised to consult the Graduate School website ([www.gradschool.wayne.edu](http://www.gradschool.wayne.edu)) for information about university funding opportunities. The GRE must be taken in order to apply for a Graduate Teaching Assistantship or to apply for a university Graduate-Professional Scholarship.

### Graduate Record Exam (GRE) and Funding Opportunities

While GRE scores are not required for admission to the program, students wishing to apply at any point in the course of their studies for a Graduate Teaching Assistantship offered by the department or for the Graduate-Professional Scholarship offered by the University must have their GRE scores reported to the appropriate representative at that time.

The Art History program offers a one-year Graduate Teaching Assistantship. The GTA may be renewed for second year. The program also offers the Alice L. and Albert W. Steinbach Endowed Scholarship Fund for Art History Graduate Students. This fund may vary but generally offers approximately \$1,500 to two students for travel/research or for tuition assistance. In addition, approximately five graduate students are hired as Graders for the 1000-level Survey courses each semester. The pay varies but is approximately \$1,300 per semester.

### Program Requirements

M.A. candidates may choose either of two plans to complete the degree requirements: Plan A (Thesis) or Plan B (Essay). All course work must be completed in accordance with the regulations of the Graduate School and the College of Fine, Performing, and Communication Arts governing graduate scholarship and degrees; see the sections beginning under Academic Regulations (p. 24) and Academic Regulations for the College of Fine, Performing, and Communication Arts (p. 186), respectively.



Plan A (Thesis) Requirements

Plan A requires thirty-two credits in coursework, including at least six credits at the 7000-level and eight credits in thesis. The thesis is expected to be a more in-depth and original contribution to art historical studies. This option must be approved by the student’s essay/thesis advisor, and a special form must be submitted to the Graduate Office. Students may concentrate in one of the following areas, but must take at least one course in four of the five core areas, for a total of four core courses (12 credits): African Arts, Classical, Medieval, Renaissance-Baroque, and Modern-Contemporary; two courses must be taken at the 7000-level (6 credits). Students must fulfill the language requirement and pass the M.A. Comprehensive Exam before completing their Thesis.

Code	Title	Credits
Complete 12 credit hours in 4 of 5 core areas: African, Classical, Medieval, Renaissance-Baroque, and Modern-Contemporary		12
Classical		
AH 5210	Hellenistic Art	
AH 5250	Ancient Rome	
AH 5260	Classical Greek Art	
AH 5270	Roman Painting and Sculpture	
AH 5310	The Ancient City of Athens	
Renaissance/Baroque		
AH 5450	Art and Architecture in the High Middle Ages	
AH 5500	Early Renaissance in Italy	
AH 5510	High Renaissance and Mannerism in Italy	
AH 5520	Art of Renaissance Venice	
Modern		
AH 5710	Trends in Nineteenth Century Art	
AH 5715	Modernism: Nineteenth and Twentieth Centuries	
AH 5720	Twentieth Century Art	
AH 5735	Art 1900-1945	
AH 5780	Topics in Twentieth-Century Art	
AH 5855	Museum Practicum	
African		
AH 5570	Performance Art of the Americas	
AH 5755	Gender and Race in Visual Culture	
Special Topics/Seminars		
AH 5560	Special Topics	
AH 5990	Directed Study	
AH 5997	Seminar	
Select 2 courses from:		6
AH 7200	Seminar in Greek and Roman Art	
AH 7500	Seminar in Renaissance Art	
AH 7700	Seminar in Modern Art	
Complete 2 elective courses		6
8 credit hours of Plan A Thesis:		8
AH 8999	Master’s Thesis Research and Direction	
Total Credits		32

Plan B (Essay) Requirements

Plan B requires thirty-three credits in course work, including at least six credits at the 7000-level, three credits in essay, and six credits in elective or cognate areas (e.g. classics, English, history, film, anthropology) or Directed Study. Students may concentrate in one of the following areas, but must take at least one course in four of the five core areas, for a total of four core courses (12 credits): Classical, Medieval, Renaissance-Baroque, Modern Contemporary, and African Arts; two courses must be at

the 7000-level (6 credits). The M.A. Essay counts for 3 credits. Students must fulfill the language requirement and pass the M.A. Comprehensive Exam before completing their Essay. Up to six graduate credits (two courses) in Art History may be transferred from a graduate program at another institution.

Code	Title	Credits
Complete 12 credit hours in 4 of 5 core areas: African, Classical, Medieval, Renaissance-Baroque, and Modern-Contemporary		12
Classical		
AH 5210	Hellenistic Art	
AH 5250	Ancient Rome	
AH 5260	Classical Greek Art	
AH 5270	Roman Painting and Sculpture	
AH 5310	The Ancient City of Athens	
Renaissance/Baroque		
AH 5450	Art and Architecture in the High Middle Ages (Renaissance/Baroque)	3
AH 5500	Early Renaissance in Italy	
AH 5510	High Renaissance and Mannerism in Italy	
AH 5520	Art of Renaissance Venice	
Modern		
AH 5710	Trends in Nineteenth Century Art	
AH 5715	Modernism: Nineteenth and Twentieth Centuries	
AH 5720	Twentieth Century Art	
AH 5735	Art 1900-1945	
AH 5780	Topics in Twentieth-Century Art	
AH 5855	Museum Practicum	
African		
AH 5570	Performance Art of the Americas	
AH 5755	Gender and Race in Visual Culture	
Special Topics/Seminars		
AH 5560	Special Topics	
AH 5997	Seminar	
Select 2 courses from:		6
AH 7200	Seminar in Greek and Roman Art	
AH 7500	Seminar in Renaissance Art	
AH 7700	Seminar in Modern Art	
Complete 2 electives courses		6
Complete 2 elective or cognate (related) courses		6
3 credit hours of Plan B Essay:		3
AH 7999	Master’s Essay Direction	
Total Credits		36

Candidacy

All graduate students begin their work as Master’s Applicants. After twelve credits have been completed, a Plan of Work must be signed by the faculty advisor and submitted to the Department Graduate Officer. If the student has maintained a 3.0 grade point average and the Plan is accepted, his/her/their status is changed to Master’s Candidate.

Language Requirement

Students must submit a statement of reading proficiency in one foreign language for approval by the faculty as appropriate to scholarly study. Students who have not completed this requirement upon admittance to the program must fulfill the language requirement as quickly as possible, and must do so by the end of coursework and before registering for the M.A. Essay or Thesis credits. Students may demonstrate reading



proficiency in the selected foreign language by one of the following two methods:

1. Completion of three terms of university-level coursework in an approved language with a 'B' average or better, as recorded on submitted transcripts. These courses do not count toward the degree credit requirement.
2. Passing the Reading portion of a Language Proficiency Exam administered in the Department of Classical and Modern Languages, Literatures, and Cultures, with a grade of 70% or higher.

Students who plan to pursue a Ph.D. in Art History should be aware that admission to such programs often requires reading ability equivalent to four terms of coursework in at least one of the languages of German or French, and are encouraged to pursue these languages.

## Progress toward the M.A.

In order to progress to candidate status in the graduate program, a student must file a Plan of Work by the time they accumulate 12 credits in the program and have attained a minimum GPA of 3.00. Students achieve candidacy when they file a Plan of Work that is approved by the art history Graduate Advisor and the college/school Graduate Office.

A candidacy hold is automatically generated for students who have not attained candidacy by the time they accumulate 12 credits. Students will not be able to register until they file a Plan of Work.

Students should therefore meet with the Graduate Advisor in their first semester to complete a Plan of Work, insuring that they will meet program requirements. The Plan of Work will be adjusted to reflect any changes in the final semester. All courses applied to the M.A. degree need a grade of not less than B. Earning a grade of B- or less in any course may be cause for probation, which would require raising the average to B in the immediately following term. A subsequent grade of B- or less could, at the discretion of the art history faculty, be grounds for dismissal from the program. Each student will be assessed during a first year review by the art history faculty.

Additionally, a part-time student must complete a minimum of one course in each academic term until completion of course work. A student may request a leave of absence from the program should circumstances make continued progress towards the degree impossible. Requests must be made in writing to the Graduate Advisor. No more than two consecutive semesters of leave will be granted at any one time.

It should be noted that the art history Graduate Advisor works with all art history graduate students and may be separate from the essay/thesis advisor. Once a student has achieved candidate status and has determined a primary area of study, he or she may petition for an essay/thesis advisor.

## M.A. Comprehensive Exam

The M.A. Comprehensive Exam is designed to test the skills and knowledge acquired during the student's coursework, to better prepare the student to write the M.A. paper (essay or thesis), and to better prepare the student for work in the field as a museum or arts professional or in a Ph.D. program. The M.A. exam will consist of two essays. Students will write one essay in their selected major field and a shorter essay in a secondary field. Secondary field questions will be more general than questions in the major field. Students will develop, with their essay/thesis advisor in their primary area and a faculty member in the secondary area, three questions in each area, primary and secondary, and will choose one of two from each area on the day of the exam.

The exam should be taken after 24 credits toward the M.A. degree have been completed (and language requirements have been completed) and must be successfully completed before writing the M.A. paper.

Questions will be written by the faculty specifically for each individual and the student will discuss with the faculty members in their primary and secondary areas possible essay areas and receive guidance on how to study and prepare. This may include a reasonable list of readings from coursework as well as additional articles or texts. This preparation also should provide a foundation for the student's M.A. paper in their primary area.

**Primary area:** In consultation with the faculty member in the primary area, three questions are prepared for this portion of the examination. These questions guide the preparation for the examination over the summer, which, for most students, is the best time to prepare for the exam. One week prior to the examination, the primary area faculty member submits a list of two questions to the Graduate Advisor who approves the questions and administers the exam. The examinee writes an essay in response to one of the two questions posed. The student has 90 minutes to answer the question of choice.

**Secondary area:** In consultation with the faculty member in the secondary area, three questions are prepared for this portion of the examination. These questions will be more general than those in the primary area. One week prior to the examination, the primary area faculty member submits a list of two questions to the Graduate Advisor who approves the questions and administers the exam.

For both the primary and secondary areas, the examinee writes an essay in response to one of the two questions posed. The student has 45 minutes to answer the question of choice. The examinees may take a fifteen-minute break between the two exam sections. Examinees will have fifteen minutes at the end to review the exam. The total exam time is 2 1/4 hours. The break and review period bring the total time to 2 3/4 hours.

**Grading:** The faculty member in the primary area will grade that portion of the exam; the faculty member in the secondary area will grade that portion of the exam. The Graduate Advisor in consultation with the primary area and secondary area instructors will determine whether the examinee has passed or failed the exam. Where the Graduate Advisor is also the primary or secondary area advisor, the Area Coordinator or another faculty member may serve as a consultant on the exam.

## Time Limit

The student must complete all degree requirements within six years of initial enrollment (including approved leaves of absence). It is expected that a full-time student will normally complete all of the requirements for the degree within three years, but that part-time students will require more time.

## Essay or Thesis Detailed Requirements and Standards

The program defines an Essay as a research study that synthesizes the literature, while a Thesis is research with an original contribution. The exact nature of the Essay or Thesis is to be arrived at in consultation with the individual essay/thesis advisor. The topic may develop out of a research or seminar paper, but the candidate embarking on the Essay or Thesis should have had at least one course with the instructor supervising the final paper.

The length and structure of the Essay or Thesis will depend on the type of material involved and be arrived at in consultation with the essay/thesis advisor. It should generally be approximately fifty pages for the Thesis but may be less for the Essay (but not less than thirty pages). While a rigorous approach to research and writing is expected for both the Essay and Thesis, a shorter length for the Essay reflects the fact that

the Essay is 3 credits while the Thesis is 8 credits. This project, whether Essay or Thesis, is the culminating work of the MA candidate and should demonstrate mastery of the methodology of the field. Both the Essay and Thesis must include the normal scholarly apparatus of footnotes, list of works cited, list of illustrations, and illustrations. The basic formal requirements are outlined below:

## Prerequisites

All course requirements, as well as language requirements and the MA Comprehensive Exam, must be completed before the Essay or Thesis proposal is submitted. It may be advantageous, of course, to begin research on a possible topic well before the final course requirements are met, particularly in cases where seminar papers seem to be promising topics. Students should feel free to consult with individual faculty members about such possibilities at an early stage and be sure to allow ample time to do the necessary bibliographical research before defining a topic. While any student may choose the Essay option, the Thesis option must be approved by the student's essay/thesis advisor, and a special form must be submitted to the Graduate Office.

## Proposal and Second Reader

The student must select a Thesis (if approved) or Essay topic in consultation with a faculty member who will be the major advisor and reader of the paper. After general agreement concerning the scope and organization of the paper has been reached, the student will write a formal proposal or thesis statement of three to five pages, which should include:

1. a clear statement of the topic and its significance;
2. a claim or argument about the topic;
3. a working outline;
4. the bibliography used to write the proposal.

It is important to discuss a first draft of the proposal with the essay/thesis advisor. The student will then consult with his or her essay/thesis advisor before asking another faculty member to serve as a Second Reader for the Essay or Thesis.

In addition, the student should compile a preliminary working bibliography (i.e., an extensive list of all the sources the student has been able to find that may be relevant to the topic - including sources that must be requested through Interlibrary Loan, or require travel in order to use, and foreign language sources).

## Research and Writing

After the proposal has been accepted, the student should meet with the essay/thesis advisor to work out a practical schedule of work for completing the Essay or Thesis. This should include enough time for draft revisions and for the Second Reader to read and comment on the revised draft.

Once the topic has been determined, the first step in research is the development of a working bibliography through a wide-ranging search for all sources that are likely to contain relevant material. It is most important at this stage to consult a wide range of indexing sources, library catalogues and electronic databases. In addition to the working bibliography, a careful record of the works of art that may be discussed in the Essay or Thesis must be kept; it should include not only the physical data and locations of the works, but also notes on sources of good reproductions.

Writing is a highly individual process, and it is not the intention of these instructions to set up rigid guidelines for either style or content.

Questions of format should be worked out with the essay/thesis advisor. Some general guidelines may be helpful, however. It is recommended that the student follow as nearly as possible the model of a reputable scholarly journal such as *Art Bulletin*. For footnotes and bibliography, the forms in any approved style manual are recommended (such as *The Chicago Style Manual*).

Essays must be revised and completed by the end of the semester in which the student is registered to graduate. The Essay will be submitted to the department. The Thesis must be submitted to both the department and the Graduate School to meet a University deadline. This is usually three weeks before the end of the semester in which the student is registered to graduate. It is the student's responsibility to keep track of these deadlines, which can be found at [www.gradschool.wayne.edu](http://www.gradschool.wayne.edu). Students must also keep the essay/thesis advisor informed on the progress of the Essay or Thesis, arrange for consultations, and turn in sections or chapters of the draft well in advance of the date on which they wish to discuss them.

## Format and Technical Requirements

The Graduate Office establishes the guidelines for the format and technical requirements of the M.A. Thesis only. Students should consult the Graduate School website and Graduate School Handbook at [www.gradschool.wayne.edu](http://www.gradschool.wayne.edu) for the appropriate guidelines.

Although minor details of format may vary, the completed final draft of the Thesis submitted to the faculty advisor and second reader must contain the following:

1. title page;
2. table of contents (without page numbers);
3. list of illustrations;
4. text;
5. footnotes;
6. appendices (if needed);
7. list of works cited;
8. illustrations;
9. autobiographical statement (in the case of a Thesis).

Illustration pages must be numbered consecutively and display a figure or plate number and page number. The captions must also include the image source.

Example:

Paul Cezanne, *Mt. Ste. Victoire from Bibemus Quarry*  
ca. 1898, oil on canvas, 25 1/2" x 32".  
Baltimore Museum of Art. (Photo: Museum).

MA Essays are not submitted to the Graduate Office and therefore are not held to the same strict formatting specifications; however, MA Essays should also follow the same general format.

# Communication

Office: 585 Manoogian Hall; 313-577-2943  
Interim Chairperson: Pradeep Sopory  
<https://comm.wayne.edu/>

The Department of Communication, in the College of Fine, Performing, and Communication Arts, offers graduate study leading to a doctoral degree, master's degree, and graduate certificate. The Department includes about thirty full-time faculty members with strong backgrounds in scholarly and professional approaches to the study and practice of communication. The Department has about 650 undergraduate majors and 150 graduate students. Approximately twenty-five graduate assistantships are offered each year to doctoral students.

The Department and faculty offices are in Manoogian Hall, located near the intersection of the John C. Lodge Freeway and Warren Avenue, in the heart of Detroit's Cultural Center. There are two media production facilities associated with the Department: the Midtown Studio (developed in partnership with Detroit Public Television, Channel 56) on the main floor of 5057 Woodward and the Media Arts production labs in the Old Main building, at the intersection of Warren and Cass Avenues. Most graduate courses are offered in the evening in Manoogian Hall.

## Departmental Philosophy

Communication is a human activity in which ideas, information, and perceptions are shared. The study of human communication involves the theory, research, and practice of human interaction among individuals, groups, institutions, and cultures, using quantitative, qualitative, rhetorical, and critical approaches.

The graduate program in communication is designed to establish and maintain high standards of scholarly research and creative/professional activity, while providing excellence in academic instruction at both the theoretical and applied levels. The graduate program encompasses the full range of empirical, rhetorical, and creative approaches, in which each student is focused through a personal Plan of Work.

Alumni of the program are skilled researchers, practitioners, critical consumers, and thoughtful observers of communication processes. While many serve as recognized scholars and educators throughout the country and world, others occupy responsible positions as communication professionals in business, government, and industry.

The research interests and methodological approaches of the faculty are diverse. Faculty members and graduate students have written extensively on computer-mediated communication, critical and cultural studies, dispute resolution, health and risk communication, interpersonal communication, journalism studies, media effects, media studies, organizational communication, public relations, and rhetorical theory and criticism. Faculty members also have diverse professional backgrounds and experiences and have won numerous state, regional, national, and international creative/professional awards. The graduate program is deeply committed to research and scholarship on the interrelations of theory, practice, research, experience, strategy, and ethics.

- Communication (Ph.D.) (p. 203)
- Communication and Urban Sustainability (Ph.D. Dual-Title) (p. 203)
- Communication (M.A.) (p. 199)
- Dispute Resolution (M.A./D.R.) (p. 204)
- Dispute Resolution (M.A./J.D. Joint Degree) (p. 205)
- Dispute Resolution (Graduate Certificate) (p. 205)
- Communication and New Media (Graduate Certificate) (p. 205)

- Health Communication (Graduate Certificate) (p. 206)
- Risk and Crisis Communication (Graduate Certificate) (p. 206)

## Communication (M.A.)

The Department offers a master's degree in Communication with concentrations in the following areas:

- Communication Studies
- Journalism
- Media Arts and Studies (*an admissions moratorium is in effect for this concentration*)
- Public Relations & Organizational Communication

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission to the M.A. program is competitive and is based on an applicant's entire academic record; the following requirements are minimum standards for consideration and do not guarantee admission. The Department requires that the applicant have a B.A. or B.S. in communication or a related field with a minimum 3.2 ('B'=3.0) grade point average for the upper-division of coursework (usually the coursework in the major) and a minimum of fifteen credit hours in communication.

The department also closely evaluates the sample of written work and academic/professional statement of purpose for evidence of potential to do graduate-level work.

In instances where an applicant's B.A. is not in communication and the transcript shows fewer than 15 credit hours of coursework in communication, the applicant may be admitted with a requirement to take specific and/or additional coursework. The Director of Graduate Studies for the Department should be contacted for further information.

Applicants with a grade point average below 3.2 for the upper-division coursework (usually the coursework in the major) may submit Graduate Record Examination (GRE) scores as additional evidence of academic ability. Applicants may also seek admission as a post-bachelor student to the university and take upper-division classes in the Department of Communication to raise their undergraduate GPA. The Director of Graduate Studies for the Department should be contacted for further information.

The M.A. application requires a completed application form, transcripts, academic/professional statement of purpose, and writing sample. Applications are reviewed on a rolling basis throughout the academic year.

Applicants should complete the online Application for Graduate Admission ([wayne.edu/admissions/graduate](https://wayne.edu/admissions/graduate)), and upload the following to the application site:

- Degree transcripts from each college and university previously attended. Official transcripts should be sent directly from the degree-granting institution to the Office of Graduate Admissions, Wayne State University, Detroit MI 48202. Unofficial transcripts should be uploaded prior to the document being officially sent to Graduate Admissions. The Graduate School's website has information about the international application process (<https://gradschool.wayne.edu/admissions/international-process/>), including degree verification.
- Academic/professional statement of purpose (approximately 500 words) that presents the applicant's academic and professional preparation for and interest in the preferred M.A. program and

concentration area, academic/professional goals, and explanation of how the graduate degree fits the academic/professional goals.

- Scholarly/academic writing sample, which serves as evidence of preparation to do graduate-level work. The typical writing sample is an individually written final paper or project report of a minimum 8-10 page length from a university course. Applicants are encouraged to submit additional writing samples such as newspaper and magazine articles, excerpts from documentary and movie scripts, press releases, and public relations communications.
- International students whose native language is not English or applicants whose undergraduate degree is not from an English-speaking country also are required to submit official Test of English as a Foreign Language (TOEFL) or International English Language Testing System (IELTS) scores to the Office of Graduate Admissions. Scores must be within five years of the date of proposed admission. Unofficial scores should be uploaded to the online application site prior to the official scores being sent. The minimum acceptable score is 100 on the TOEFL Internet Based Test (iBT) and 6.5 on the IELTS.

Current Wayne State University graduate students wishing to change to a new graduate program from their current graduate program or add a new graduate program to their current graduate program should submit an online application. Such students submit a Change of Graduate Status form to the Director of Graduate Studies. Application materials (unofficial and official degree transcripts, academic/ professional statement of purpose, and as appropriate, writing sample and letters of reference) as described above should be submitted with the online application by the application deadline.

M.A. applicants are admitted for the fall and the winter semesters. Deadline for application materials for fall semester admission is June 1; and for the winter semester it is November 1.

## Program Requirements

The Master of Arts degree is offered by the Department of Communication. Please see the concentrations for specific degree requirements.

Students must plan a program of study as early as possible in consultation with the assigned advisor. Candidacy must be established by filing an approved Plan of Work by the time twelve credits have been earned. COM 7000 must be included in the Plan of Work and must be taken during the first semester of coursework. All students must complete COM 7000 with a grade of B or better in order to continue in the program. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186).

Essays or theses may be chosen when allowed as an option in the concentration, after consultation with the advisor. A final oral examination will be held for those writing theses.

Courses that relate to a student's particular area of interest are selected in consultation with the advisor and are formalized by filing the Plan of Work. The Plan of Work must be approved by the advisor and the Director of Graduate Studies.

## Concentrations

### Communication Studies

The Master of Arts in Communication with a Concentration in Communication Studies program is designed for students with a general interest in the study of human communication. It is intended primarily for students preparing for doctoral study in communication, or desiring

in-depth study of research and analytical skills (a highly desired skill set by employers). The degree requires minimum 30 credits.

Code	Title	Credits
<b>Two required courses:</b>		<b>6</b>
COM 7000	Introduction to MA Studies in Communication	
COM 7410	Communication Theory	
<b>Three research methods courses:</b>		<b>9</b>
COM 7260	Quantitative Research Methods in Communication	
COM 7360	Qualitative Research Methods in Communication	
And select one of the following:		
COM 6530	Audience Measurement and Survey Techniques	
COM 7250	Rhetorical Criticism	
COM 7340	Interviewing	
COM 7365	Ethnographic Methods for Communication Research	
COM 7580	Content Analysis	
<b>Select one of the following capstone plan options:</b>		<b>15</b>
<b>Plan A: Thesis</b>		
COM 8999	Master's Thesis Research and Direction (6 credits required, distributed across two or three semesters)	
Any three courses from the department as electives, totaling 9 credits.		
<b>Plan B: Essay</b>		
COM 7999	Master's Essay Direction (3 credits required, distributed across two or three semesters)	
Any four courses from the department as electives, totaling 12 credits.		
<b>Plan C: Coursework</b>		
Any five courses from the department as electives, totaling 15 credits.		
<b>Total Credits</b>		<b>30</b>

## Journalism

The Master of Arts in Communication with a Concentration in Journalism program prepares students for careers in news organizations and related areas in mass media. The program includes courses in print and broadcast management skills, organizational communication, Internet-based reporting, and communication and cultural diversity issues. The degree requires a minimum 30 credits.

Code	Title	Credits
<b>One required course:</b>		<b>3</b>
COM 7000	Introduction to MA Studies in Communication	
<b>Two Journalism Core courses:</b>		<b>6</b>
COM 5080	History of Journalism and Mass Media	
COM 5250	Professional Issues in Journalism and Mass Media	
COM 5710	Law and Ethics in Journalism and Mass Media	
COM 6280	Reporting on Diversity	
<b>One theory course:</b>		<b>3</b>
COM 7410	Communication Theory	
COM 7520	Theories of Media Effects	
COM 7700	Political Communication	
<b>One research methods course:</b>		<b>3</b>
COM 6530	Audience Measurement and Survey Techniques	
COM 7260	Quantitative Research Methods in Communication	
COM 7360	Qualitative Research Methods in Communication	



COM 7365	Ethnographic Methods for Communication Research	
COM 7580	Content Analysis	
<b>Two additional content courses:</b> <sup>1</sup>		<b>6</b>
COM 5200	Special Topics in Advanced Reporting	
COM 5310	Investigative Reporting	
COM 5381	TV News Reporting and Digital Editing	
COM 5410	Producer's Workshop	
COM 5460	Magazine Writing	
COM 5500	Journalism and New Media	
COM 5610	Advanced TV Production	
COM 6190	Internship	
<b>Select one of the following capstone plan options:</b>		<b>9</b>
<b>Plan A: Thesis</b>		
COM 8999	Master's Thesis Research and Direction (6 credits required, distributed across two or three semesters)	
Any one course from the department as elective, minimum 3 credits		
<b>Plan B: Essay</b>		
COM 7999	Master's Essay Direction (elected for 3 credits)	
Any two courses from the department as electives, totaling 6 credits		
<b>Plan C: Coursework</b>		
Any three courses from the department as electives, totaling 9 credits		
<b>Total Credits</b>		<b>30</b>

<sup>1</sup> Unused Journalism Core Courses can be taken as additional content courses.

## Media Arts and Studies (an admissions moratorium is in effect for this concentration)

The M.A. concentration in Media Arts and Studies is designed to immerse students in the technological, creative, societal, research and analytical considerations of our globalized, multi-platform, multi-screen media environment. Students matriculating through the program will demonstrate a strong foundation in digital media technology and its applications, along with research and analysis skills that will grant them flexibility to enter a broad range of professional and creative environments, as well as a foundation for potential doctoral work. The concentration offers electives in media storytelling and production, media studies, media entrepreneurship and management, and media in strategic and applied communication; enabling students to design a program to specifically meet their needs and goals, and the opportunity to explore creative and scholarly approaches to multiple screens. Students may complete the M.A. in Media Arts and Studies with a minimum of 30 credits.. Requirements include:

Code	Title	Credits
<b>COM Requirement</b>		<b>3</b>
COM 7000	Introduction to MA Studies in Communication	
<b>Theory Requirement (Select one of the following)</b>		<b>3</b>
COM 6270	New Media Theory	
COM 7520	Theories of Media Effects	
COM 7530	Critical Mass Communication Theory	
COM 7610	Feminist Media Theory	
<b>Research Methods Requirement (select one of the following)</b>		<b>3</b>
COM 6530	Audience Measurement and Survey Techniques	
COM 7260	Quantitative Research Methods in Communication	
COM 7360	Qualitative Research Methods in Communication	

COM 7365	Ethnographic Methods for Communication Research	
COM 7580	Content Analysis	
<b>Foundation Requirements</b>		<b>6</b>
COM 6050	New Media Practices	
COM 5520	International Communications	
<b>Creative Requirement (Select in consultation with a faculty advisor)</b>		<b>3</b>
COM 5350	Media Arts Production (Students without recent digital media production experience must take COM 5350)	
Students with recent production experience should select one of the following:		
COM 5380	Video Field Production and Editing	
COM 5400	Techniques of Film and Video Production	
COM 5610	Advanced TV Production	
COM 6090	Digital Screen Media	
COM 6390	Documentary Storytelling I	
COM 6410	Allesee Master Class	
COM 7270	Advanced Screenwriting	
COM 7420	Seminar in Directing	
<b>Select one of the following capstone plan options:</b>		<b>12</b>
<b>Plan A:</b>		
COM 8999	Master's Thesis Research and Direction (M.A. Thesis (6 cr.); plus electives (6 cr.))	
<b>Plan B</b>		
COM 7999	Master's Essay Direction (Masters Essay/Project Direction (3 cr.); plus electives (9 cr.))	
<b>Plan C</b>		
Electives (12 cr.)		
<b>Total Credits</b>		<b>30</b>

## Public Relations and Organizational Communication

The Public Relations and Organizational Communication concentration emphasizes the theory and application of communication in a variety of contexts. These include working in public relations, employee relations, media relations, public affairs, issue and crisis management, technical and employee communication, and related activities in business, industry, non-profit, and governmental settings. The degree requires a minimum of 30 credits.

Code	Title	Credits
<b>Required courses:</b>		<b>18</b>
COM 7000	Introduction to MA Studies in Communication	
COM 6250	Organizational Communication	
COM 6140	Public Relations Theory	
COM 7140	Public Relations Campaigns and Issues Management	
COM 6190	Internship <sup>1</sup>	
COM 7220	Professional Issues in Applied Communication <sup>2</sup>	
<b>At least one of the following Research Methods courses:</b>		<b>3</b>
COM 6530	Audience Measurement and Survey Techniques	
COM 7250	Rhetorical Criticism	
COM 7260	Quantitative Research Methods in Communication	
COM 7360	Qualitative Research Methods in Communication	
<b>At least two of the following Public Relations &amp; Organizational Communication content area elective courses:</b>		<b>6</b>
COM 5710	Law and Ethics in Journalism and Mass Media	
COM 6050	New Media Practices	



COM 6100	Speech Writing
COM 6270	New Media Theory
COM 7150	Micro-level Organizational Communication
COM 7160	Crisis Communication
COM 7162	Risk Communication: Theoretical and Practical Approaches
COM 7170	Health and Risk Communication
COM 7172	Risk Communication: Disasters, Hazards, and the Media
COM 7210	Strategic Communication and Social Media
COM 7240	Communication Consulting and Training
COM 7410	Communication Theory
<b>One additional course chosen in consultation with advisor</b>	
<b>3</b>	

#### <sup>1</sup> **Option 1: Traditional Internship**

Work for a specified number of hours at an approved internship site where students can acquire and build upon skills that will serve their career goals. Students are required to have a site supervisor.

#### **Option 2: Service Learning Internship Project**

Complete a service-learning project in conjunction with the graduate internship coordinator. Students are required to have a site supervisor at the hosting organization.

#### **Option 3: Worksite Internship Project**

Students take on a project at their current organization, provided that it significantly extends the scope of their current responsibilities or introduces them to a new domain of practice within the organization. The graduate internship coordinator must approve the project. Students are required to have a designated site supervisor other than their current supervisor.

<sup>2</sup> Capstone course.

## Public Relations and Organizational Communication (Online)

The Public Relations and Organizational Communication concentration for the M.A. in Communication emphasizes the theory and application of communication in a variety of contexts. These include working in public relations, employee relations, media relations, public affairs, issue and crisis management, technical and employee communication, and related activities in business, industry, non-profit, and governmental settings. The degree requires a minimum of 30 credits.

Code	Title	Credits
<b>Required courses:</b>		<b>18</b>
COM 7000	Introduction to MA Studies in Communication	
COM 6250	Organizational Communication	
COM 6140	Public Relations Theory	
COM 7140	Public Relations Campaigns and Issues Management	
COM 6190	Internship <sup>1</sup>	
COM 7220	Professional Issues in Applied Communication <sup>2</sup>	
<b>At least one of the following Research Methods courses:</b>		<b>3</b>
COM 6530	Audience Measurement and Survey Techniques	
<b>At least two of the following Public Relations &amp; Organizational Communication content area elective courses:</b>		<b>6</b>
COM 6050	New Media Practices	
COM 6270	New Media Theory	
COM 7160	Crisis Communication	
COM 7162	Risk Communication: Theoretical and Practical Approaches	

COM 7170	Health and Risk Communication
COM 7172	Risk Communication: Disasters, Hazards, and the Media
COM 7210	Strategic Communication and Social Media
<b>One additional course chosen in consultation with advisor</b>	
<b>3</b>	

#### <sup>1</sup> **Option 1: Traditional Internship**

Work for a specified number of hours at an approved internship site where students can acquire and build upon skills that will serve their career goals. Students are required to have a site supervisor.

#### **Option 2: Service Learning Internship Project**

Complete a service-learning project in conjunction with the graduate internship coordinator. Students are required to have a site supervisor at the hosting organization.

#### **Option 3: Worksite Internship Project**

Students take on a project at their current organization, provided that it significantly extends the scope of their current responsibilities or introduces them to a new domain of practice within the organization. The graduate internship coordinator must approve the project.

Students are required to have a designated site supervisor other than their current supervisor.

<sup>2</sup> Capstone course.

## Departmental AGRADE Program

The AGRADE program enables highly qualified seniors majoring in Communication Studies or Public Relations to enroll simultaneously in undergraduate and graduate programs and to apply a maximum of 15 credits toward both the undergraduate and graduate degrees. The program encourages such students to continue to graduate school at Wayne State by reducing the time to the master's degree. Only AGRADE-approved courses in which the student has earned a B or higher will transfer to the graduate transcript. Once in the master's program, students may be required to repeat an AGRADE course in which they earn less than a B grade.

**Eligibility:** AGRADE applicants must have an overall undergraduate GPA of 3.5. Applicants are also expected to have performed at a superior level in their major, as determined by the major department and reflected in a GPA in the major of at least 3.6 at the time of application.

**Application:** A student seeking AGRADE status should present to the Department of Communication Graduate Committee all of the materials which that department requires for normal admission to the M.A. program with a concentration in Communication Studies. Specific departmental admission requirements can be found in this bulletin or obtained from the Graduate Advisor in the Department of Communication (313-577-2959).

The earliest date by which a student may apply for the AGRADE program is during the semester in which he/she completes 90 credits toward the undergraduate degree.

**AGRADE Credits:** Students may elect a minimum of three and a maximum of 15 AGRADE credits. These credits will be used to complete the baccalaureate degree as well as to serve as the beginning of graduate study. Upon formal admission to a master's program, AGRADE credits are transferred as if they were graduate credits transferred from a graduate program at another university. The remaining graduate credits required for the master's degree will be earned in the conventional manner following formal admission to the graduate program. Formal admission to the graduate program occurs as AGRADE students complete their baccalaureate degree.

Students admitted into an AGRADE program will develop a Plan of Work for the master's program, specifying the courses that will be taken in the

AGRADE status as well as the courses required for the balance of the undergraduate degree. **Note that COM 7000 must be taken in the first semester of AGRADE coursework.** The remaining AGRADE courses must be approved by both the student's undergraduate program advisor and the graduate director of the master's program. In courses permitting both undergraduate and graduate students to enroll, AGRADE students will be held to the graduate standard.

For more details about the AGRADE program, contact the Graduate Advisor in the Department of Communication (313-577-2959)

## Communication (Ph.D.)

At the Ph.D. level the primary aim of the Department is to help students develop the theoretical basis and the analytical and research skills necessary for scholarly inquiry into various communication acts, processes, and contexts. Courses in the Department are designed to serve several specific purposes:

1. To promote research and study into all aspects of communication process and effects.
2. To provide intensive inquiry into communication areas such as computer-mediated communication, critical and cultural studies, dispute resolution, health and risk communication, interpersonal communication, journalism studies, media effects, media studies, organizational communication, public relations, and rhetorical theory and criticism.
3. To prepare students for communication related careers in public service organizations and private business.
4. To prepare communication educators.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission to the Department's Ph.D. program is competitive and is based on an applicant's entire academic record; requirements stated below are minimum standards for consideration and do not guarantee admission. The Department requires an M.A. degree in communication or a related field, with a minimum 3.5 grade point average on a 4.0 scale. In those instances where an applicant's M.A. is not communication-related, or there are fewer than fifteen semester credits in communication, the applicant may be admitted to the department's master's degree program until such time as sufficient background for doctoral study is demonstrated. The determination of sufficiency is rendered at an appropriate time by the Director of Graduate Studies, normally after the completion of 12 to 15 graduate hours in communication.

Application: There are six parts to the Ph.D. application process including submission of the following:

1. The Application for Graduate Admission (<http://wayne.edu/admissions/graduate/>)
2. Three letters of recommendation from persons qualified to assess the applicant's scholarly potential
3. A two- to three-page statement of the applicant's academic interests and professional goals identifying faculty with whom the applicant would like to work
4. A sample of sole-authored written scholarship, such as a research paper or a master's thesis
5. Graduate Record Examination (GRE) scores (minimum 50th percentile required). International students are also required to submit scores from Test of English as a Foreign Language (TOEFL) (minimum 100 on Internet-based Test required) or equivalent tests

6. Official transcripts from each college and university previously attended.

An academic curriculum vitae or professional resume is recommended but not required.

Doctoral students are admitted for the fall semester only. The deadline for the first round of admissions is January 15. Application materials are submitted online through Graduate Admissions. Current Wayne State University graduate students must also apply online through Graduate Admissions and submit a Change of Graduate Status form with the application.

## Doctoral Degree Requirements

Doctoral degree requirements consist of a minimum of ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credit. The thirty credit dissertation registration requirement is fulfilled by registering for the courses COM 9991, COM 9992, COM 9993, and COM 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186).

All students must complete COM 8000: Introduction to Ph.D. Studies in Communication in the first semester of coursework with a grade of B or better. Students must also complete COM 7810: Seminar in Communication Education in their first semester of coursework, but this can be waived. The student's Coursework Worksheet and Plan of Work must be developed in consultation with the advisor; the Worksheet must be filed within the first eighteen credits and the Plan of Work within the first twenty-seven credits of study.

Additional requirements include:

- Minimum five Tool/Methods courses. Up to two graduate-level transfer courses may be applied, but these will not count toward the required minimum sixty credits of coursework. Foreign language reading and writing proficiency as determined by appropriate tests can count as one Tool course, if the adviser judges the language directly relevant to the dissertation project.
- Minimum four Content courses in the Department of Communication that together constitute a research area specialization
- Additional Elective Content courses as needed to achieve minimum sixty credits of coursework (includes up to thirty credits transferred from prior graduate-level coursework, if applicable).
- Content courses (minimum nine credits) outside the Department of Communication that together constitute a Minor/Cognate.
- Minimum thirty dissertation credits (COM 9991, COM 9992, COM 9993, COM 9994, each seven and half credits, to be taken in consecutive semesters).
- Successful completion of the written and oral parts of the Qualifying Examination.
- Successful presentation and defense of the Dissertation Prospectus.
- Successful presentation and defense of the Doctoral Dissertation.

## Communication and Urban Sustainability (Ph.D. Dual-Title)

Students admitted to the Ph.D. program in Communication can apply to earn a Ph.D. in Communication with a dual title in Urban Sustainability. This dual title degree is designed to prepare researchers and professionals to solve challenging urban problems that require working across disciplines. Students enrolled in this dual title program

will take courses in topics and develop specific skills relating to urban sustainability across several departments. Students in the program will also undertake activities such as community service, participate in colloquiums, and prepare a funding proposal related to urban sustainability. The dual-title coursework follows competencies outlined by the Transformative Research in Urban Sustainability Training program.

## Admission Requirements

Applicants must meet the admissions standards of the Graduate School (p. 21) and the Department of Communication and be first offered admission to the Communication doctoral program.

## Program Requirements

Students in the Communication and Urban Sustainability dual-title program are required to take eight core classes, at least three research methods/tools courses, and two electives from a list of elective courses (one of which must be from outside the Department of Communication).

Code	Title	Credits
Core Courses		
ANT 5060	Urban Anthropology	
BIO 7310	Sustainability of Urban Environmental Systems	
CE 5410	Energy, Emissions, Environment (E3) Design	
COM 7170	Health and Risk Communication	
COM 7810	Seminar in Communication Education	
COM 8000	Introduction to PhD Studies	
GS 0900	Essential Research Practices: Responsible Conduct of Research	
UP 6470	Environmental Planning	
Methods/Tools Courses		
Three research methods courses. It is expected that students will bring at least two additional research methods courses from their M.A. coursework.		
Elective Courses		
ANT 5565	Urban Archaeology	
ANT 6570	Archaeological Laboratory Analysis	
BIO 5040	Biometry	
BIO 5180	Field Investigations in Biological Sciences	
BIO 6420	Ecotoxicology and Risk Assessment	
BIO 7011/ PHC 7410	Principles of Toxicology	
CE 6270	Sustainability Assessment and Management	
CE/PSC 6910	Pharmaceutical Waste: Environmental Impact and Management	
CE 7280	Applied Environmental Microbiology	
CE 7995	Special Topics in Civil Engineering II <sup>1</sup>	
COM 6140	Public Relations Theory	
COM 6250	Organizational Communication	
COM 7160	Crisis Communication	
ECO 6200	Advanced Regulation and Regulated Industries	
ECO 6800	Advanced Urban and Regional Economics	
FPH 7420	Principles of Environmental Health	
ESG 5000	Geological Site Assessment	
ESG 5510	Environmental Fate and Transport of Pollutants	
ESG 5610	Special Topics in Environmental Science and Geology	
ESG 5650	Applied Geologic Mapping	
LEX 7231	Environmental Law	

SOC 6750	Sociology of Urban Health
SOC 7200	Advanced Survey of Approaches and Techniques of Social Research
SOC 8802	Topics in Urban Sociology
SOC 8805	Sociology of Urban and Labor Studies
UP 5110	Urban Planning Process
UP 5430	Cities and Food
UP 6120	Planning Studies and Methods
UP 6260	Land Use Policy and Planning
UP 6700	Geographic Information Systems

<sup>1</sup> In order to satisfy the elective requirement, the topic area must be relevant to the program. Students should consult with their advisor for details.

## Dispute Resolution (M.A.D.R.)

*An admissions moratorium is currently in effect for this program.*

The Master of Arts in Dispute Resolution (MADR) is an interdisciplinary master's degree program housed in the Department of Communication.

The MADR offers a challenging program, informed by a multicultural perspective, in the growing and recognized field of dispute resolution. As an interdisciplinary field, grounded in the fundamental idea that dispute resolution techniques are inherently democratic in giving voice to disputants, the program provides practical and academic experience that constitutes the range of dispute resolution activities: community, civil and school mediation, organizational and family dispute intervention, legal or business negotiation, and international peacemaking and diplomacy.

Applicants must meet the admission standards of the Graduate School (p. 21). In addition, at least a 3.0 grade point average in the upper division of undergraduate coursework is required. Applicants must submit a personal statement of one-two pages outlining their interest in the program and three letters of recommendation.

This master's degree is offered as a Plan C program only. It requires the completion of the core curriculum (twenty-four credits) plus a minimum of two approved elective courses (minimum of six credits). All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186). A 3.0 grade point average is required; if a grade below 'B' is received in any core course, the course must be repeated promptly and a grade of 'B' or above obtained. A grade of 'B' or below in any two graduate courses will constitute a sufficient basis for dismissal from the program. Students are expected to file a Plan of Work upon successful completion of nine graduate credits. Upon approval of the Plan, the student's rank will be changed from 'applicant' to 'candidate,' provided the grade point average is at least 3.0

Code	Title	Credits
Core Curriculum		24
PCS 6100	Introduction to Graduate Peace and Security Studies	
COM 6350	Communication, Culture, and Conflict	
DR 6120	Human Diversity and Human Conflict	
DR 7100	Roots of Social Conflict	
DR 7210/ MGT 7780	Workplace Negotiations	
DR 7220	Concepts and Processes of Dispute Resolution II: Neutral Intervention Theory and Practice	

DR 7310/ LEX 7660	Practicum in Dispute Resolution	
DR 7890	Final Seminar in Dispute Resolution	
<b>Electives (minimum 2 courses) <sup>1</sup></b>		<b>6</b>
<b>Total Credits</b>		<b>30</b>

<sup>1</sup> In addition to the core courses, students are required to take a minimum of two electives, adding up to six credits minimum, from courses offered within the Department of Communication or by other Departments across campus. Electives should be selected in consultation with the academic director of the dispute resolution program.

## Dispute Resolution (M.A./J.D.)

*An admissions moratorium is currently in effect for this program.*

The Department of Communication Dispute Resolution Program in cooperation with the Law School offers a joint degree program leading to a Master of Arts degree in dispute resolution and a Juris Doctor (J.D.) degree. Students in this program must be admitted to both the Law School and the M.A. program in dispute resolution.

Students in this program must first be admitted to the Law School and then apply to the M.A. program in Dispute Resolution (M.A.D.R.). During their first year of Law School, joint degree seeking students should apply to the M.A.D.R. program using the online Application for Graduate Admission form (see admission requirements for M.A.D.R. listed above).

This degree requires the completion of a minimum 102 credits with the master's degree part of the program offered only under Plan C. The first year of study is spent in the Law School. Following completion of the first year and after consultation with the Academic Director of M.A.D.R., students may elect one course per semester, up to a total of four courses, in the graduate M.A.D.R. program, credit for which is applicable toward the J.D. degree. In addition, Law School courses LEX 7016 (Alternative Dispute Resolution), and LEX 7616 (Negotiation) are considered equivalent to the M.A.D.R. core courses DR 7220 (Neutral Intervention) and DR 7210 (Negotiation), respectively, and their credit may be applied toward the M.A.D.R. Finally, students in this program may apply one Law School course (three credits) toward the satisfaction of the M.A.D.R. elective requirement.

For further information, contact the Academic Director of M.A.D.R. or the Law School Admissions Office.

NOTE: The Law School has an academic calendar and registration process separate from those in the Graduate School. Students must ensure they meet all appropriate application requirements and deadlines.

## Dispute Resolution (Graduate Certificate)

*An admissions moratorium is currently in effect for this program.*

The Graduate Certificate program in Dispute Resolution is designed to provide professional study in the interdisciplinary field of dispute resolution for individuals holding or pursuing advanced degrees in other disciplines. The certificate is administered by the Academic Director.

Applicants must meet the admission standards of the Graduate School (p. 21). In addition, at least a 3.0 grade point average in the upper division of undergraduate coursework is required. Applicants must submit a

personal statement of one-two pages outlining their interest in the program and two letters of recommendation.

Students in the certificate program must complete a minimum of fifteen credits as outlined below and maintain a grade point average of at least 3.0. The certificate allows maximum six credits to count toward both the certificate and a relevant M.A. offered by this Department only when there is concurrent enrollment in the certificate and the M.A. programs. Transfer of credit from other institutions may NOT be applied toward the credits required for the certificate. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186). The following courses are required:

Code	Title	Credits
<b>Required core courses</b>		
PCS 6100	Introduction to Graduate Peace and Security Studies	3
DR 7210	Workplace Negotiations	3
DR 7220	Concepts and Processes of Dispute Resolution II: Neutral Intervention Theory and Practice	3
DR 7890	Final Seminar in Dispute Resolution	3
Select one of the following:		3
DR 6120	Human Diversity and Human Conflict	
COM 6350	Communication, Culture, and Conflict	
DR 7100	Roots of Social Conflict	
<b>Total Credits</b>		<b>15</b>

## Communication and New Media (Graduate Certificate)

The Communication and New Media Graduate Certificate emphasizes theory, production, and application of new media technology. The program reflects developments in communication, computer, and telecommunications technologies. Students completing the Certificate will be exposed to and have a basic understanding of the theoretical and applied aspects of new media and communication. Competencies achieved will include, but are not limited to:

1. Awareness of trends toward new media convergence and communication theories;
2. Knowledge of new media effects and audiences; uses of new communication modes; and
3. Recognition of multi-media methods used in online and mobile communications.

Additionally, the program will familiarize students with the design and evaluation of communication messages and software applications.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, at least a 3.0 grade point average in the upper division of undergraduate coursework and a personal statement of one-two pages regarding interest in the program and career goals are required. Eligibility for this program is limited to persons holding an undergraduate degree from an accredited education institution in communication or a related field.

## Certificate Requirements

The Certificate requires satisfactory completion of twelve credits from the curriculum outlined below. Courses must be completed with a minimum grade point average of 3.0 or better, and must be completed within three



years of the enrollment. The Certificate allows maximum six credits to count toward both the Certificate and a relevant M.A. in the Department only when there is concurrent enrollment in the Certificate and the M.A. programs. Transfer of credit from other institutions may NOT be applied toward the credits required for the certificate. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186).

Code	Title	Credits
<b>Required Courses</b>		
COM 5280	New Media Practices	3
COM 6270	New Media Theory	3
<b>Elective Courses</b>		
Select minimum of six credits of the following:		6
COM 5300	Layout and Design	
COM 5500	Journalism and New Media	
COM 6220	Dispute Resolution and Communication Technology	
COM 6530	Audience Measurement and Survey Techniques	
COM 7990	Directed Study: MA	
CSC 5750	Principles of Web Technology	
LDT 7210	Emerging Technologies for Digital Learning	
<b>Total Credits</b>		<b>12</b>

## Health Communication (Graduate Certificate)

The Graduate Certificate program in Health Communication is designed to provide research-based, professional study for graduate students interested in the role of communication in the health professions. The twelve-credit certificate focuses on components of health communication and their influence on individuals and communities as well as on knowledge creation and research translation and publication. The program emphasizes the role of theory, methods, and strategies in developing messages designed to improve health outcomes for individuals and communities. The Certificate provides both depth in the study of health communication and breadth through the inclusion of a set of elective health-related courses in Anthropology, Family Medicine and Nursing. The program is sufficiently flexible to accommodate students with broad interests and diverse backgrounds.

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, at least a 3.0 grade point average in the upper division of undergraduate coursework and a personal statement of one-two pages regarding interest in the program and career goals are required.

Twelve credits in the program as outlined below including a required three-credit communication course, six credits of electives and a three-credit elective health-related course. The Certificate allows maximum six credits to count toward both the Certificate and a relevant M.A. offered by the Department only when there is concurrent enrollment in the Certificate and the M.A. programs. Courses must be completed with a minimum grade point average of 3.0 or better, and must be completed within three years of the enrollment. Transfer of credit from other institutions may NOT be applied toward the credits required for the certificate. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186).

Code	Title	Credits
COM 6180	Principles of Health Communication	3
Select two of the following:		6
COM 5130	Communication and Social Marketing	
COM 7010	Special Topics	
COM 7150	Micro-level Organizational Communication	
COM 7170	Health and Risk Communication	
Select one of the following:		3
ANT 5400	Anthropology of Health and Illness	
COM 6190	Internship	
FPH 7320	The Social Basis of Health	
Other course approved by the advisor		
<b>Total Credits</b>		<b>12</b>

## Risk and Crisis Communication (Graduate Certificate)

The graduate certificate provides professionals and graduate students research-based knowledge and best practices of risk and crisis communication especially in the context of public health emergency events.

## Admission Requirements

Applicants must meet the admission standards of the Graduate School (p. 21). A bachelor's degree from a US institution or its equivalent from international colleges and universities. Students with a master's degree or its international equivalent also may enroll. Applicants must have a minimum of a 3.0 grade point average in upper division undergraduate coursework. In addition, preference will be given to students who have worked for a minimum of two years in government, non-governmental organizations, or private firms that focus on emergency management and response, health communication, and risk management.

## Certificate Requirements

The Risk and Crisis Communication certificate requires 12 credits of coursework.

Code	Title	Credits
COM 7160	Crisis Communication	3
COM 7162	Risk Communication: Theoretical and Practical Approaches	3
COM 7170	Health and Risk Communication	3
COM 7172	Risk Communication: Disasters, Hazards, and the Media	3
<b>Total Credits</b>		<b>12</b>

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186). A course substitution may be allowed with a strong rationale for the change and consultation with a faculty advisor. Students in the department enrolled in the M.A. and the graduate certificate program concurrently may have a maximum of 6 credits double-count toward both the M.A. and graduate certificate.

## Music

Office: 1321 Old Main; 313-577-1795; e-mail: music@wayne.edu

Interim Chairperson: Russell Miller

Graduate Officer: Joshua S. Duchan



## Mission Statement

The Department of Music cultivates music as a contemporary and global art, grounded in a long historical tradition, by combining higher education with professional training and experience for its undergraduate and graduate/professional students.

The Department offers serious students of music opportunities to learn, grow, and develop their skills and disciplines in an urban cultural setting. With close proximity to Detroit's cultural center, students have access to the resources of such premiere institutions as the Detroit Institute of Arts, the Detroit Public Library, the Detroit Opera House, and Orchestra Hall. The long historical relationship between the Detroit Symphony Orchestra and the Department allows students to study and coach with exceptional guest artists and resident artist-faculty who are specialists in all musical styles and media.

Building on the strengths of its geographic and cultural setting, the Department maintains public access to its performances and degree programs, offers high-level professional and academic standards, as well as unique creative and scholarly opportunities appropriate to a large research university. The Department also cultivates a deep aesthetic understanding of music in our students and the larger urban arts community.

- Master of Arts in Music (M.A.) (p. 207)
- Master of Music (M.M.) (p. 207)

## Music (M.A.)

The Master of Arts degree is designed for students who wish to pursue an academic career in music through a broad liberal arts curriculum.

Admission to this program is contingent upon admission to the Graduate School (<https://wayne-curr.courseleaf.com/graduate/general-information/admission/>). In addition, applicants in music must:

1. apply to the Graduate School as a Music Major;
2. possess an undergraduate degree in the same field for which he or she wishes to pursue graduate study, or its equivalent in course work, private study, or experience;
3. complete a pre-admission interview. Interview requirements are available from the Department of Music (<http://music.wayne.edu/master-arts/auditions.php>).

All students admitted to Master's degrees are required to pass departmental placement examinations ([http://www.music.wayne.edu/graduate\\_curr.php](http://www.music.wayne.edu/graduate_curr.php)) in theory and history.

The MA in Music is offered under **Plan A**: Twenty-four credits in course work, plus an eight-credit thesis.

**Prerequisite:** Prospective students should present a minimum of forty-five acceptable undergraduate credits in music distributed according to the requirements for the Bachelor of Arts degree with a major in music or its equivalent in course work, study, and experience. All students applying to the MA must complete a pre-admission interview.

**Candidacy** must be established by the time twelve credits have been earned toward the master's degree. Applicants become degree candidates only upon recommendation of the Departmental Graduate Officer and submission of an approved Plan of Work. Before a student can be admitted to candidacy in the MA curriculum, satisfactory completion of a reading examination in a foreign language (preferably German or French) is required.

**Oral Examination:** An oral examination is required of all students in the MA program.

**Academic Scholarship:** The University requires that each student achieve a minimum grade point average of 3.0, in order to be eligible for a graduate degree. All courses in the student's major must be completed with a grade of 'B-minus' or higher to be counted towards program credit. Grades below 'B-minus' are unsatisfactory and constitute valid cause for dismissing a student from a graduate program. The Department of Music permits a student to accumulate a maximum of six credits of 'B-minus' grades (in courses other than the area of concentration) as long as they are offset by higher grades so that a 3.0 grade point average is maintained at all times. Additionally, credits of B-minus and below in excess of six credits may result in dismissal from the program, regardless of whether the courses are included in the student's Plan of Work. All course work must be completed in accordance with the regulations of the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the College of Fine, Performing, and Communication Arts (<https://bulletins.wayne.edu/graduate/college-fine-performing-communication-arts/academic-regulations/>).

Code	Title	Credits
MUH 5300	Music Research	3
MUH 73XX: 6-9 credits chosen in consultation with the program advisor <sup>1</sup>		6-9
MUT 7XXX: 6-9 credits chosen in consultation with the program advisor <sup>1</sup>		6-9
MUH 8999	Master's Thesis Direction	8
	Music electives or cognates	6
	Oral Examination	0
	Total Credits	32
<b>Notes</b>		

1. All electives must be approved by the Program Advisor and Department Graduate Officer and listed on the Plan of Work.  
MUH 7370 and MUH 7991 are not approved for History Electives.  
MUT 7100 is not approved for Theory Electives.

## Music (M.M.)

The Master of Music degree provides a program for students pursuing a professional concentration in:

- Composition/Theory
- Conducting
- Instrumental Performance
- Jazz Performance
- Vocal Performance
- Music Industry Studies

## Admission Requirements

Admission to these programs is contingent upon admission to the Graduate School (<https://wayne-curr.courseleaf.com/graduate/general-information/admission/>). In addition, all master's degree applicants in music must:

1. apply to the Graduate School as a Music Major;
2. possess an undergraduate degree in the same field for which he or she wishes to pursue graduate study, or its equivalent in course work, private study, or experience;
3. complete pre-admission auditions or interviews. Audition and interview requirements are available from the Department of Music (<http://music.wayne.edu/grad-auditions/>).

All students admitted to master's degrees are required to pass departmental placement examinations ([http://www.music.wayne.edu/graduate\\_curr.php](http://www.music.wayne.edu/graduate_curr.php)) in theory and history.

## Program Requirements

The Master of Music degree is offered under the following options:

**Plan A:** Twenty-four credits in course work, plus an eight-credit thesis. Available for the following concentrations:

- *Concentration in Composition/Theory:* Students may choose the composition track or the theory track. For composition-track students, an original composition, separate from the work completed in MUH 7100 and approved by the Program Advisor, serves as the thesis. For theory-track students, a written thesis drawing on current research in theory and analysis, applied toward a project of the student's choice with approval by the Program Advisor, serves as the thesis.
- *Concentration in Music Industry Studies*

**Plan B:** Thirty credits in course work, plus a two-credit essay. Available for the following concentration:

- *Concentration in Music Industry Studies*

**Plan C:** Thirty-two credits in course work, plus a graduate recital. Available for the following concentrations:

- *Concentration in Conducting*
- *Concentration in Instrumental Performance*
- *Concentration in Jazz Performance*
- *Concentration in Vocal Performance*

**Candidacy** must be established by the time twelve credits have been earned toward the master's degree. Applicants become degree candidates only upon recommendation of the Departmental Graduate Officer and submission of an approved Plan of Work.

**Oral Examination:** An oral examination is required of all students M.M. program.

**Academic Scholarship:** The University requires that each student achieve a minimum grade point average of 3.0, in order to be eligible for a graduate degree. All courses in the student's major must be completed with a grade of 'B-minus' or higher to be counted towards program credit. Grades below 'B-minus' are unsatisfactory and constitute valid cause for dismissing a student from a graduate program. The Department of Music permits a student to accumulate a maximum of six credits of 'B-minus' grades (in courses other than the area of concentration) as long as they are offset by higher grades so that a 3.0 grade point average is maintained at all times. Additionally, credits of B-minus and below in excess of six credits may result in dismissal from the program, regardless of whether the courses are included in the student's Plan of Work. All course work must be completed in accordance with the regulations of the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the College of Fine, Performing, and Communication Arts (<https://bulletins.wayne.edu/graduate/college-fine-performing-communication-arts/academic-regulations/>)

### Music: Composition/Theory (M.M.)

**Prerequisite:** Bachelor of Music with a concentration in composition/theory or its equivalent in coursework, background, or experience. As part of the pre-admission interview, applicants must present scores and/or theory research materials as evidence of preparation for graduate work in composition or theory.

Code	Title	Credits
<b>Music History</b>		
MUH 5300	Music Research	3
MUH 73XX Music History Electives (selected in consultation with Program Advisor)		6
MUH 7315	Seminar in Music History	
MUH 7320	Studies in Renaissance Music	
MUH 7330	Studies in Baroque Music	
MUH 7340	Studies in Classical Music	
MUH 7350	Studies in Romantic Music	
MUH 7360	Studies in Twentieth Century Music	
MUH 7380	Studies in American Music	
MUH 7390	Studies in Jazz History	
<b>Music Composition and Music Theory</b>		
Select twelve credits in consultation with the Program Advisor. Composition students must elect nine credits of MUT 7100.		12
MUT 7020	Seminar in Schenkerian Analysis	
MUT 7040	Seminar in Twentieth Century Music	
MUT 7050	Seminar in Music Theory Pedagogy	
MUT 7085	History of Theory	
MUT 7070	Advanced Jazz Theory and Analysis	
MUT 7100	Graduate Composition (students on the composition track must elect 9 credits of MUT 7100; max. 12)	
MUT 7200	Special Topics in Theory	
MUT 7992	Directed Study in Theory (max. 6)	
MUT 8999	Master's Thesis Direction (see below) <sup>1</sup>	8
<b>Music or Non-music Electives</b>		3
<b>Oral Examination</b>		0
<b>Total Credits</b>		<b>32</b>

<sup>1</sup> For composition-track students, an original composition, separate from the work completed in MUT 7100 and approved by the Program Advisor, serves as the thesis. For theory-track students, a written thesis drawing on current research in theory and analysis, applied toward a project of the student's choice with approval by the Program Advisor, serves as the thesis.

### Music: Conducting (M.M.)

**Prerequisite:** Bachelor of Music with a concentration in music education, organ/church music, or performance, or the equivalent in course work, training, or experience. All applicants must successfully complete a pre-admission audition and interview that includes demonstrating proficiency in score reading and piano.

Code	Title	Credits
<b>Music History</b>		
MUH 5300	Music Research	3
MUH 7370	Studies in Advanced Literature for Conductors	3
MUH 73XX Music History Electives (chosen in consultation with Program Advisor)		6
MUH 7315	Seminar in Music History	
MUH 7320	Studies in Renaissance Music	
MUH 7330	Studies in Baroque Music	
MUH 7340	Studies in Classical Music	
MUH 7350	Studies in Romantic Music	
MUH 7360	Studies in Twentieth Century Music	
MUH 7380	Studies in American Music	

MUH 7390	Studies in Jazz History	
<b>Music Theory</b>		
MUT 7020	Seminar in Schenkerian Analysis	3
MUT 7XXX Music Theory Elective (chosen in consultation with Program Advisor)		3
MUT 7040	Seminar in Twentieth Century Music	
MUT 7050	Seminar in Music Theory Pedagogy	
MUT 7070	Advanced Jazz Theory and Analysis	
MUT 7085	History of Theory	
MUT 7200	Special Topics in Theory	
MUT 7992	Directed Study in Theory	
<b>Conducting and Ensemble</b>		
Major Ensemble (chosen in consultation with Program Advisor) (req. 2)		2
MUA 7800	University Bands	
MUA 7810	University Symphony Orchestra	
MUA 7840	Choral Union	
MUA 7850	Concert Chorale	
MUP 739X (Major Private Instr. in Conducting) (req. 9, max. 12)		9
MUP 7291	Conducting: Major Instruction	
MUP 7292	Conducting: Major Instruction	
MUP 7293	Conducting: Major Instruction	
MUP 8290	Recital	1
<b>Music or Non-music Electives</b>		<b>2</b>
<b>Oral Examination</b>		<b>0</b>
<b>Total Credits</b>		<b>32</b>

### Music: Jazz Performance (M.M.)

**Prerequisite:** Bachelor of Music with a concentration in jazz studies or jazz performance or the equivalent in course work, private study, or experience. All applicants must successfully complete a pre-admission audition.

Code	Title	Credits
<b>Music History</b>		
MUH 5300	Music Research	3
MUH 5360	Jazz History	3
MUH 7390	Studies in Jazz History	3
<b>Music Theory</b>		
MUT 7070	Advanced Jazz Theory and Analysis	3
MUT 7XXX Music Theory Elective (chosen in consultation with Program Advisor)		3
MUT 7020	Seminar in Schenkerian Analysis	
MUT 7040	Seminar in Twentieth Century Music	
MUT 7050	Seminar in Music Theory Pedagogy	
MUT 7085	History of Theory	
MUT 7200	Special Topics in Theory	
MUT 7992	Directed Study in Theory	
<b>Performance</b>		
MUP 73XX (Major Private Instruction) (req. 9, max. 12)		9
MUP 7321	Jazz Piano: Major Instruction	
MUP 7322	Jazz Piano: Major Instruction	
MUP 7323	Jazz Piano: Major Instruction	
MUP 7331	Jazz Strings: Major Instruction	
MUP 7332	Jazz Strings: Major Instruction	
MUP 7333	Jazz Strings: Major Instruction	

MUP 7341	Jazz Woodwinds: Major Instruction	
MUP 7342	Jazz Woodwinds: Major Instruction	
MUP 7343	Jazz Woodwinds: Major Instruction	
MUP 7351	Jazz Brasswinds: Major Instruction	
MUP 7352	Jazz Brasswinds: Major Instruction	
MUP 7353	Jazz Brasswinds: Major Instruction	
MUP 7361	Jazz Percussion: Major Instruction	
MUP 7362	Jazz Percussion: Major Instruction	
MUP 7363	Jazz Percussion: Major Instruction	
MUP 7371	Jazz Guitar: Major Instruction	
MUP 7372	Jazz Guitar: Major Instruction	
MUP 7373	Jazz Guitar: Major Instruction	
MUA 7820	Jazz Big Band (req. 3)	3
Small Jazz Ensemble (select from the following in consultation with Program Advisor) (max. 2):		1
MUA 7822	Jazz Guitar Ensemble	
MUA 7824	Jazztet	
MUA 7826	Jazz Combos	
MUP 8290	Recital <sup>1</sup>	1
<b>Music or Non-music Electives</b>		<b>3</b>
<b>Oral Examination</b>		<b>0</b>
<b>Total Credits</b>		<b>32</b>

<sup>1</sup> Recital program must include original compositions/arrangements.

### Music: Instrumental Performance (M.M.)

**Prerequisite:** Bachelor of Music with a concentration in instrumental performance or equivalent in course work, study, or experience. All applicants must successfully complete a pre-admission audition.

Code	Title	Credits
<b>Music History</b>		
MUH 5300	Music Research	3
MUH 73XX Music History Electives (chosen in consultation with Program Advisor)		6
MUH 7315	Seminar in Music History	
MUH 7320	Studies in Renaissance Music	
MUH 7330	Studies in Baroque Music	
MUH 7340	Studies in Classical Music	
MUH 7350	Studies in Romantic Music	
MUH 7360	Studies in Twentieth Century Music	
MUH 7380	Studies in American Music	
MUH 7390	Studies in Jazz History	
<b>Music Theory</b>		
MUT 7XXX Music Theory Electives (chosen in consultation with Program Advisor)		6
MUT 7020	Seminar in Schenkerian Analysis	
MUT 7040	Seminar in Twentieth Century Music	
MUT 7050	Seminar in Music Theory Pedagogy	
MUT 7070	Advanced Jazz Theory and Analysis	
MUT 7085	History of Theory	
MUT 7200	Special Topics in Theory	
MUT 7992	Directed Study in Theory	
<b>Performance</b>		
MUP 7XXX (Major Private Instruction) (req. 9, max. 12)		9
MUP 7201	Organ: Major Instruction	

MUP 7202	Organ: Major Instruction	
MUP 7203	Organ: Major Instruction	
MUP 7211	Piano: Major Instruction	
MUP 7212	Piano: Major Instruction	
MUP 7213	Piano: Major Instruction	
MUP 7231	Strings: Major Instruction	
MUP 7232	Strings: Major Instruction	
MUP 7233	Strings: Major Instruction	
MUP 7241	Woodwinds: Major Instruction	
MUP 7242	Woodwinds: Major Instruction	
MUP 7243	Woodwinds: Major Instruction	
MUP 7251	Brasswinds: Major Instruction	
MUP 7252	Brasswinds: Major Instruction	
MUP 7253	Brasswinds: Major Instruction	
MUP 7261	Percussion: Major Instruction	
MUP 7262	Percussion: Major Instruction	
MUP 7263	Percussion: Major Instruction	
MUP 7271	Harp: Major Instruction	
MUP 7272	Harp: Major Instruction	
MUP 7273	Harp: Major Instruction	
MUP 7281	Classic Guitar: Major Instruction	
MUP 7282	Classic Guitar: Major Instruction	
MUP 7283	Classic Guitar: Major Instruction	
Large Ensemble (select from of the following in consultation with Program Advisor) (req. 1, max. 2) <sup>1</sup>		1-2
MUA 7800	University Bands	
MUA 7810	University Symphony Orchestra	
MUA 7840	Choral Union	
MUA 7850	Concert Chorale	
MUA 7880	Chamber Music and Special Ensembles (req. 1, max. 2) <sup>1</sup>	1
MUP 8290	Recital	1
<b>Music or Non-music Electives</b>		<b>4</b>
<b>Oral Examination</b>		<b>0</b>
<b>Total Credits</b>		<b>32</b>

<sup>1</sup> Major ensemble and chamber music elections must total a minimum of 3 credit hours.

## Music: Vocal Performance (M.M.)

**Prerequisite:** Bachelor of Music with a concentration in vocal performance or its equivalent in course work, study, or experience. All applicants must successfully complete a pre-admission audition.

Code	Title	Credits
<b>Music History and Theory</b>		
MUH 5300	Music Research	3
MUH 73XX Music History Electives (chosen in consultation with Program Advisor)		6
MUH 7315	Seminar in Music History	
MUH 7320	Studies in Renaissance Music	
MUH 7330	Studies in Baroque Music	
MUH 7340	Studies in Classical Music	
MUH 7350	Studies in Romantic Music	
MUH 7360	Studies in Twentieth Century Music	
MUH 7380	Studies in American Music	

MUH 7390	Studies in Jazz History	
MUT 7XXX Music Theory Elective (chosen in consultation with Program Advisor)		3
MUT 7020	Seminar in Schenkerian Analysis	
MUT 7040	Seminar in Twentieth Century Music	
MUT 7050	Seminar in Music Theory Pedagogy	
MUT 7070	Advanced Jazz Theory and Analysis	
MUT 7085	History of Theory	
MUT 7200	Special Topics in Theory	
MUT 7992	Directed Study in Theory	
<b>Performance</b>		
MUP 7221	Voice: Major Instruction	3
MUP 7222	Voice: Major Instruction	3
MUP 7223	Voice: Major Instruction	3
MUA 7730	Advanced Diction	3
Major Ensembles (select from the following in consultation with Program Advisor) (req. 3, max. 3)		3
MUA 7840	Choral Union	
MUA 7850	Concert Chorale	
MUA 7860	Opera Workshop	
MUA 7880	Chamber Music and Special Ensembles	1
MUP 8290	Recital	1
<b>Music or Non-music Electives</b>		<b>3</b>
<b>Oral Examination</b>		<b>0</b>
<b>Total Credits</b>		<b>32</b>

## Music: Music Industry Studies (M.M.)

**Prerequisite:** Bachelor's degree in music, business, or technology, or its equivalent in course work, study, or experience. All applicants must submit a portfolio demonstrating their preparedness for graduate study, and successfully complete a pre-admission interview.

The M.M. concentration in Music Industry Studies is offered under two curricular plans. Students choose Plan A or Plan B.

### Plan A

Code	Title	Credits
<b>Fundamental Courses</b>		
MUH 5300	Music Research	3
MUH 73XX Music History Elective (chosen in consultation with Program Advisor) <sup>1</sup>		3
MUH 7315	Seminar in Music History	
MUH 7320	Studies in Renaissance Music	
MUH 7330	Studies in Baroque Music	
MUH 7340	Studies in Classical Music	
MUH 7350	Studies in Romantic Music	
MUH 7360	Studies in Twentieth Century Music	
MUH 7380	Studies in American Music	
MUH 7390	Studies in Jazz History	
MUT 7XXX Music Theory Elective (chosen in consultation with Program Advisor) <sup>1</sup>		3
MUT 7020	Seminar in Schenkerian Analysis	
MUT 7040	Seminar in Twentieth Century Music	
MUT 7050	Seminar in Music Theory Pedagogy	
MUT 7070	Advanced Jazz Theory and Analysis	
MUT 7085	History of Theory	
MUT 7200	Special Topics in Theory	
MUT 7992	Directed Study in Theory	

Fundamentals of Music Industry (chosen in consultation with Program Advisor)	3
MUA 6500 Music IP and Stakeholders	
MUA 6510 Mixing and Mastering	
MUA 6530 Advanced Music Synthesis	
<b>Advanced Courses in Music Industry Studies</b>	<b>9</b>
MUA 6500 Music IP and Stakeholders <sup>2</sup>	
MUA 6510 Mixing and Mastering <sup>2</sup>	
MUA 6530 Advanced Music Synthesis <sup>2</sup>	
MUA 6540 Advanced Studio Techniques	
MUA 6550 Marketing and Artist Management in Music	
MUA 6570 Music Entrepreneurship and Leadership	
MUA 7010 Audio Electronics	
MUA 7020 Theories of Electronic Music	
MUA 7030 Sound Design for Visual Media	
MUA 7040 Electroacoustic Music	
MUA 7080 Strategy and Organization in Music	
MUA 7891 Electronic Music Ensemble <sup>3</sup>	
MUT 5280 Interactive Electronic Music Composition	
<b>Music or non-Music Electives</b>	<b>3</b>
<b>Thesis and Oral Examination</b>	<b>8</b>
Thesis (chosen in consultation with Program Advisor) <sup>4</sup>	
MUA 8999 Master's Thesis Direction	
MUH 8999 Master's Thesis Direction	
MUT 8999 Master's Thesis Direction	
Oral Examination	0
<b>Total Credits</b>	<b>32</b>

<sup>1</sup> All electives must be approved by the Program Advisor and Department Graduate Officer and listed on the Plan of Work. MUH 7370 and MUH 7991 are not approved for History Electives. MUT 7100 is not approved for Theory Electives.

<sup>2</sup> The course selected as a Fundamental Course (MUA 6500, MUA 6510, or MUA 6530) cannot also count as an Advanced Course.

<sup>3</sup> MUA 7891 may only count once toward the Advanced Courses requirement. Additional repetitions may count as General Electives. A total of three (3) credits of MUA 7891 may count toward the MM concentration in Music Industry Studies.

<sup>4</sup> In consultation with the Program Advisor and the Thesis Advisor, the student should select MUA 8999, MUH 8999, or MUT 8999 as appropriate to the nature of the final project. 8 thesis credits are required for the degree, but credits from MUA 8999, MUH 8999, MUT 8999 cannot be combined.

## Plan B

Code	Title	Credits
<b>Fundamental Courses</b>		<b>12</b>
MUH 5300	Music Research	3
MUH 73XX Music History Elective (chosen in consultation with Program Advisor) <sup>1</sup>		3
MUH 7315	Seminar in Music History	
MUH 7320	Studies in Renaissance Music	
MUH 7330	Studies in Baroque Music	
MUH 7340	Studies in Classical Music	
MUH 7350	Studies in Romantic Music	
MUH 7360	Studies in Twentieth Century Music	
MUH 7380	Studies in American Music	
MUH 7390	Studies in Jazz History	

MUT 7XXX Music Theory Elective (chosen in consultation with Program Advisor) <sup>1</sup>	3
MUT 7020 Seminar in Schenkerian Analysis	
MUT 7040 Seminar in Twentieth Century Music	
MUT 7050 Seminar in Music Theory Pedagogy	
MUT 7070 Advanced Jazz Theory and Analysis	
MUT 7085 History of Theory	
MUT 7200 Special Topics in Theory	
MUT 7992 Directed Study in Theory	
Fundamentals of Music Industry (chosen in consultation with Program Advisor)	3
MUA 6500 Music IP and Stakeholders	
MUA 6510 Mixing and Mastering	
MUA 6530 Advanced Music Synthesis	
<b>Advanced Courses in Music Industry Studies</b>	<b>12</b>
MUA 6500 Music IP and Stakeholders <sup>2</sup>	
MUA 6510 Mixing and Mastering <sup>2</sup>	
MUA 6530 Advanced Music Synthesis <sup>2</sup>	
MUA 6540 Advanced Studio Techniques	
MUA 6550 Marketing and Artist Management in Music	
MUA 6570 Music Entrepreneurship and Leadership	
MUA 7010 Audio Electronics	
MUA 7020 Theories of Electronic Music	
MUA 7030 Sound Design for Visual Media	
MUA 7040 Electroacoustic Music	
MUA 7080 Strategy and Organization in Music	
MUA 7891 Electronic Music Ensemble <sup>3</sup>	
MUT 5280 Interactive Electronic Music Composition	
<b>Music or non-Music Electives</b>	<b>6</b>
<b>Essay and Oral Examination</b>	<b>2</b>
MUA 7999 Master's Essay Direction	2
Oral Examination	0
<b>Total Credits</b>	<b>32</b>

<sup>1</sup> All electives must be approved by the Program Advisor and Department Graduate Officer and listed on the Plan of Work. MUH 7370 and MUH 7991 are not approved for History Electives. MUT 7100 is not approved for Theory Electives.

<sup>2</sup> The course selected as a Fundamental Course (MUA 6500, MUA 6510, or MUA 6530) cannot also count as an Advanced Course.

<sup>3</sup> MUA 7891 may only count once toward the Advanced Courses requirement. Additional repetitions may count as General Electives. A total of three (3) credits of MUA 7891 may count toward the MM concentration in Music Industry Studies.



# Theatre and Dance

Office: 3226 Old Main; 313-577-3508  
Chairperson: Michael J Barnes  
<http://www.theatreanddance.wayne.edu> (<http://theatreanddance.wayne.edu/>)

- Arts Administration (M.A.) (p. 212)
- Theatre (M.F.A.) (p. 212)
- Theatre and Dance (M.A.) (p. 215)

## Arts Administration (M.A.)

The Master of Arts in Arts Administration program offers a broad arts administration education as well as focus within specific areas of practice. The program fosters leadership and management skills, explores processes of innovation and creativity, examines networks and sources of support, while drawing on sound business and administrative training. The program also makes use of local dynamic arts institutions and the smaller entrepreneurial arts and cultural organizations. Students will receive the background to lead arts and cultural organizations such as theaters, galleries, museums, arts and culture festivals, arts centers, arts councils, local and regional arts boards, dance companies, community arts and cultural organizations, and musical ensembles including symphonies, orchestras, jazz and choral groups.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

## Program Requirements

The program requires a minimum total of 30 credits. The curriculum may be fulfilled with a minimum of 28 credits of coursework and 2 credits of Master's Essay Direction or an approved Directed Study.

Code	Title	Credits
<b>Required Core Courses</b>		<b>10</b>
THR 5640	Introduction to Accounting for Nonprofit Organizations	
THR 6651	Public Relations and the Arts	
THR 7671	Development II: Advanced Topics	
THR 7999	Master's Essay Direction	
	or THR 7990 Directed Study	
<b>General Electives (select 2 of the following)</b>		<b>6</b>
FPC 5025	Entrepreneurship in the Arts	
FPC 5660	Creativity	
THR 7651	Leadership in the Arts	
THR 8689	Internships in Theatre Management	
<b>Departmental Electives</b>		<b>14</b>
AH 5855	Museum Practicum	
ACS 5200	Art Gallery Management	
ACS 5210	Art Gallery Internship	
ACS 5650	Museum Culture: Histories, Critiques, Practices	
FPC 5025	Entrepreneurship in the Arts	
FPC 5660	Creativity	
MUA 5800	Strategy and Organization in Music	
THR 6661	Marketing the Theatre	
THR 6675	Board Governance in the Theatre	
THR 7651	Leadership in the Arts	

THR 7655	Human Resources and Financial Management for the Arts	
THR 7661	Market Data and Decisions in the Arts	
THR 7665	Development I: Principles of Fundraising for Not-for-Profit Arts Organizations	
THR 8661	The Media and the Theatre	
THR 8665	Managing Groups and Teams	
THR 8689	Internships in Theatre Management	
<b>Total Credits</b>		<b>30</b>

## Theatre (M.F.A.)

The Master of Fine Arts in theatre is a three-year program of intensive professional training in the student's area of specialization in acting, scenic design, costume design, lighting design, theatre management or stage management.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Each area of specialization has specific requirements for application and admission, which are managed through the online application system and are also listed on the Department's website (<http://theatreanddance.wayne.edu/theatre/mfa.php>). Students must declare their area of specialization upon entry into the program.

## Program Requirements

The Master of Fine Arts with a Major in Theatre is offered only as a Plan C master's program, requiring sixty credits in the area of specialization. All programs require a final project and a final oral examination relevant to the degree specialization. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Fine, Performing, and Communication Arts (p. 186).

## Concentrations

### Acting

Sixty Credits

Code	Title	Credits
THR 5812	Development of the Drama II: Nineteenth Century to Modern (Max. 3)	3
THR 6211	Acting Studio I: Fundamentals of the Stanislavski System	2
THR 6215	Acting Studio II: Introduction to the Michael Chekhov	2
THR 7211	Acting Studio III: Advanced Michael Chekhov Technique	2
THR 7215	Acting Studio IV: Advanced Study of Active Analysis and Physical Approach to Acting	2
THR 8211	Acting Studio V: Preparation for the Profession	2
THR 8215	Acting Studio VI: Audition and Composition	2
THR 6221	Theatrical Movement I - Introduction to Physical Awareness	1
THR 6235	Voice and Speech II: Speech Foundations	1
THR 7231	Voice and Speech III - Vocalizing Heightened Language and Shakespeare	1
THR 7235	Voice and Speech IV: Accents and Dialects for Stage and Media	1
THR 8231	Voice and Speech V: Accents & Dialects for Stage and Media	1
THR 8235	Voice and Speech VI - Media Techniques	1

THR 6221	Theatrical Movement I - Introduction to Physical Awareness	1
THR 6225	Theatrical Movement II - Introduction to Movement Analysis	1
THR 7221	Theatrical Movement III: Dance Techniques	1
THR 7225	Theatrical Movement IV - Ensemble Physicality	1
THR 8221	Theatrical Movement V - Acrobatics	1
THR 8225	Theatrical Movement VI - Composition and Physical Devising	1
THR 5721	Playwriting	3
THR 7271	Acting for the Camera	3
THR 7281	Theatre Aesthetics	3
THR 7581	Repertory Theatre: Acting (Max. 18)	1-4
THR 7741	Dramaturgy	3
THR 8995	MFA Acting Exit Project	3

## Theatre Management

*Sixty Credits*

Code	Title	Credits
THR 6651	Public Relations and the Arts	3
THR 6661	Marketing the Theatre	3
THR 6675	Board Governance in the Theatre	2
THR 7584	Graduate Practicum in Theatre Management (Max. 12)	1-3
THR 7651	Leadership in the Arts	3
THR 7661	Market Data and Decisions in the Arts	2
THR 7671	Development II: Advanced Topics	3
THR 7665	Development I: Principles of Fundraising for Not-for-Profit Arts Organizations	2
THR 8991	MFA Management Exit Project	1-3
THR 5642	Research Methods and Technology in the Theatre Management	3
THR 7662	Production Management for the Theatre	2
THR 7675	Producing for the Commercial Theatre	3
THR 7652	Arts Policy and Advocacy	3
THR 5640	Introduction to Accounting for Nonprofit Organizations	2
THR 6662	Audience Development and Community Engagement for the Arts	2
THR 6672	Legal and Ethical Issues in the Arts	3
THR 6674	Strategic Planning for Arts Organizations	2

### Electives

Complete electives, in consultation with advisor, sufficient to total 60 credit hours.

FPC 5025	Entrepreneurship in the Arts	
THR 5841		
THR 5811	Development of the Drama I: Greek to Eighteenth Century	
THR 5812	Development of the Drama II: Nineteenth Century to Modern	
THR 7741	Dramaturgy	
THR 7281	Theatre Aesthetics	

## Stage Management

First Year		
Fall Semester		Credits
THR 6301	Foundations of Collaboration and Design	2
THR 5301	Design Skills - Drafting I	3
Theatre Elective		2
THR 6601	Stage Management Studio - Principles	2
THR 7583	Advanced Production Practice: Production	1
Credits		10
Winter Semester		
THR 7321	Costume History I	2
THR 7342	Design Skills - Digital II	1
THR 6605	Stage Management - Health and Safety	2
Theatre Elective		3
THR 7583	Advanced Production Practice: Production	2
Credits		10
Second Year		
Fall Semester		
Theatre Management Elective		2
Academic Theatre Elective		3
THR 7601	Stage Management - Event Management	2
THR 7583	Advanced Production Practice: Production	3
Credits		10
Winter Semester		
Theatre Management Elective		2
Academic Theatre Elective		3
THR 7605	Stage Management - Performance Management	2
THR 7583	Advanced Production Practice: Production	3
Credits		10
Third Year		
Fall Semester		
THR 8991	MFA Management Exit Project	1
Theatre Elective		3
Theatre Management Elective		2
THR 5601	Stage Management - AEA Contracts	2
THR 7583	Advanced Production Practice: Production	2
Credits		10
Winter Semester		
Individual Study or Internship		3
Theatre Elective		3
THR 8605	Stage Management - Commerce of Theatre	2
THR 7583	Advanced Production Practice: Production	2
Credits		10
Total Credits		60

## Theatre Stage Design

First Year		
Fall Semester		Credits
THR 6301	Foundations of Collaboration and Design	2
THR 5301	Design Skills - Drafting I	3
THR 7341	Design Skills - Digital I	2
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	2
Credits		10
Winter Semester		
THR 5315	Entertainment Design - Scenery I	2
THR 7321	Costume History I	2
THR 6351	Visual Communication for Theatre and Dance	2
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	3
Credits		10
Second Year		
Fall Semester		
THR 7371	Entertainment Design - Projection	2

THR 7311	Entertainment Design - Scenery II	2
THR 5422	Introduction to Scene Painting	3
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>10</b>
<b>Winter Semester</b>		
THR 5331	Entertainment Design - Lighting I	2
THR 6303	Design Skills - Drafting II	3
THR 7381	Architecture and Decor	3
THR 5426	Advanced Scene Painting	3
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	1
<b>Credits</b>		<b>13</b>
<b>Third Year</b>		
<b>Fall Semester</b>		
THR 6381	Styles of Design	3
THR 7315	Entertainment Design - Scenery III	2
THR 8992	MFA Design Exit Project	2
Academic Theatre Elective		3
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	1
<b>Credits</b>		<b>12</b>
<b>Winter Semester</b>		
THR 7342	Design Skills - Digital II	1
THR 5325	Entertainment Design - Costume I	2
Academic Theatre Elective		3
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	3
<b>Credits</b>		<b>10</b>
<b>Total Credits</b>		<b>65</b>

## Stage Lighting Design

<b>First Year</b>		
<b>Fall Semester</b>		<b>Credits</b>
THR 6301	Foundations of Collaboration and Design	2
THR 5301	Design Skills - Drafting I	3
THR 7341	Design Skills - Digital I	2
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>10</b>
<b>Winter Semester</b>		
THR 5331	Entertainment Design - Lighting I	2
THR 7321	Costume History I	2
THR 7342	Design Skills - Digital II	1
THR 6351	Visual Communication for Theatre and Dance	2
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>10</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
THR 5335	Advanced Stage Lighting Design	3
THR 7371	Entertainment Design - Projection	2
THR 6306	Design Skills - Drawing	1
THR 5422	Introduction to Scene Painting	3
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>11</b>
<b>Winter Semester</b>		
THR 5315	Entertainment Design - Scenery I	2
THR 5325	Entertainment Design - Costume I	2
Academic Theatre Elective		3
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>10</b>

<b>Third Year</b>		
<b>Fall Semester</b>		
THR 6331	Professional Lighting Design I	3
THR 6381	Styles of Design	3
THR 8992	MFA Design Exit Project	2
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	3
<b>Credits</b>		<b>12</b>
<b>Winter Semester</b>		
THR 6303	Design Skills - Drafting II	3
THR 7381	Architecture and Decor	3
THR 6306	Design Skills - Drawing	1
Theatre Elective		2
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>11</b>
<b>Total Credits</b>		<b>64</b>

## Stage Costume Design

<b>First Year</b>		
<b>Fall Semester</b>		<b>Credits</b>
THR 6301	Foundations of Collaboration and Design	2
THR 5301	Design Skills - Drafting I	3
THR 7341	Design Skills - Digital I	2
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>10</b>
<b>Winter Semester</b>		
THR 7321	Costume History I	2
THR 6352	Visual Communication Costumes	2
Academic Theatre Elective		3
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>10</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
THR 7325	Costume History II	2
AFA 5442	Fashion Design: Draping	3
AFA 5422	Fashion Design: Flat Pattern	3
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	1
<b>Credits</b>		<b>10</b>
<b>Winter Semester</b>		
THR 5325	Entertainment Design - Costume I	2
THR 7381	Architecture and Decor	3
Theatre Elective		3
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>11</b>
<b>Third Year</b>		
<b>Fall Semester</b>		
THR 6381 or THR 7371	Styles of Design or Entertainment Design - Projection	2-3
THR 6321	Entertainment Design - Costume II	2
Academic Theatre Elective		3
THR 8991	MFA Management Exit Project	1
THR 6306	Design Skills - Drawing	1
THR 7582	Advanced Production Practice : Pre-Production	1
<b>Credits</b>		<b>10-11</b>
<b>Winter Semester</b>		
THR 5315 or THR 5331	Entertainment Design - Scenery I or Entertainment Design - Lighting I	2
THR 6351	Visual Communication for Theatre and Dance	2
Academic Theatre Elective		3
THR 6306	Design Skills - Drawing	1

THR 7582	Advanced Production Practice : Pre-Production	2
<b>Credits</b>		<b>10</b>
<b>Total Credits</b>		<b>61-62</b>

## Theatre and Dance (M.A.)

The Master of Arts degree includes a three-year part-time program of advanced studies in theatre and dance, designed to provide specialized training in research methods and assessment, pedagogical foundations of teaching artistry, artistic practice and inquiry, and community engagement.

Admission to this program is contingent upon admission to the Graduate School (p. 21).

The program requires a total of thirty two (32) credits, and can be completed in one of two options:

- Plan A (Thesis): Includes 24 credits of coursework and 8 credits of Master's Thesis Research and Direction
- Plan B (Essay): Includes 28 credits of coursework and 4 credits of Master's Essay Direction

### Plan A: Thesis

Three-Year Part-Time Plan

Code	Title	Credits
THD 7951	Foundations of Theatre and Dance Pedagogy	3
THD 7901	Research Methods in Theatre and Dance	3
THD 8875	Seminar: Research Topics in Theatre and Dance	3
THD 8951	Arts and Human Development	3
The following courses should be taken twice for credit:		12
THD 8961	Artistic Praxis	
THD 8965	Principles of Teaching Artistry	
Plan A capstone experience:		8
THR 8999	Master's Thesis Research and Direction	
<b>Total Credits</b>		<b>32</b>

### Plan B: Essay

Three-Year Part-time Plan. Coursework includes:

Code	Title	Credits
THD 7951	Foundations of Theatre and Dance Pedagogy	3
THD 7901	Research Methods in Theatre and Dance	3
THD 8875	Seminar: Research Topics in Theatre and Dance	3
THD 8951	Arts and Human Development	3
The following courses should be taken twice for credit:		12
THD 8961	Artistic Praxis	
THD 8965	Principles of Teaching Artistry	
Plan B capstone experience:		8
THR 7990	Directed Study	
THR 7999	Master's Essay Direction	
<b>Total Credits</b>		<b>32</b>

# School of Information Sciences

Dean: Paul Bracke

## The Information Profession

The School of Information Sciences (SIS) prepares information professionals to assume leadership roles in libraries and information organizations. By emphasizing the practical application of knowledge and skills, students are trained in the core principles of information management - information access, organization, services, and management - as well as emerging competencies such as digitization, competitive intelligence, information architecture, and website development. SIS faculty research issues that improve library and information services as an essential component to cultural enrichment, knowledge dissemination, economic development, and the overall quality of life.

Qualified information professionals work in varied settings all over the globe. SIS graduates work in libraries as well as diverse information careers in the public, private, and nonprofit sectors. As organizations continue to view their information as a critical resource and place greater importance on its cultivation, SIS graduates can be found enjoying engaging and exciting careers throughout business, law, health sciences, publishing, government, archives and museums, communications and media, engineering, academia, pre-K-12 education, information organizations and industries.

## Graduate Degrees

The School of Information Sciences offers two master's level degree options. The Master of Library and Information Science (MLIS) degree is recognized by the American Library Association (ALA) as the first professional degree in this field and serves as the credential for entry-level professional employment. The Master of Science in Information Management (MSIS) expands the school's current Graduate Certificate in Information Management (GCIM) into a degree that complements the school's Master of Library and Information Science (MLIS) degree. The MSIS will appeal to prospective graduate students with an interest in working as information professionals in organizations and industries outside the typical venues for MLIS degree holders (e.g., libraries, archives, or school media centers) where a foundational core of library science coursework is not required.

## Accreditation

The School of Information Sciences' MLIS degree has been accredited continuously by the American Library Association since 1967. The School's most recent continuing accreditation was granted by the ALA Committee on Accreditation in 2017. The School's next comprehensive accreditation review occurs in the Fall of 2023.

## Mission and Goals of the School

### Mission Statement

We combine theories with practices to educate leaders who advance the importance of information in society. We deliver accessible, high quality education incorporating professional scholarship and best practices. We focus on three pillars:

Library Users and Services  
Information Management  
Archives and Digital Content Management

### Goals and Objectives

**TEACHING EXCELLENCE: SIS will encourage and teach professional approaches and a service philosophy.**

- SIS will educate students in the history, philosophies, theories, principles, policies, and ethics of library and information science.
- SIS will expose students to the historical, social, cultural, educational, political, and economic dimensions of information and information agencies.
- SIS will provide the skills and dispositions for excellence in information service delivery.
- SIS will continuously evaluate and apply evolving technologies to its teaching, learning, research, and service programs.

**STUDENT SUCCESS: SIS will cultivate a culture of student success.**

- SIS will incorporate career enhancement skills development into all courses.
- SIS will promote relationships between students and other members of the campus community who support student learning and success.
- SIS will deliver a "Distinctively Wayne State" experience that leverages our Detroit location, diversity, and academic and research excellence to better prepare students for success.
- SIS will stress the importance of lifelong learning and will promote opportunities to sustain professional growth and achievement, including career mentoring.

**RESEARCH: SIS will foster, facilitate, and support research by faculty and students.**

- SIS will support faculty research and scholarly communication.
- SIS will cultivate faculty engagement with student research experiences and skill development.
- SIS will encourage and support students in presenting their research in courses, at conferences, and through publication.



**DIVERSITY AND INCLUSION: SIS will be engaged within the diverse communities and world of which we are a part.**

- SIS will seek diversity among the faculty.
- SIS will seek diversity and facilitate inclusion among the student body.
- SIS will address the roles of library and information services in a diverse global society, paying particular attention to the underserved.
- SIS will facilitate student experience in multicultural and multiethnic information environments.

**COMMUNITY ENGAGEMENT: SIS will practice and foster engagement in traditional as well as interdisciplinary research, scholarship, and practices that address important societal as well as information and library issues.**

- SIS will engage the library community, alumni, and employers.
- SIS will promote commitment and involvement in professional associations and organizations.
- SIS will encourage involvement in the community and community organizations.
- SIS will support service activities and participation in leadership roles at the School, University, local, state, national, and international levels.

# Archival Administration (Graduate Certificate)

The Graduate Certificate in Archival Administration was established both for individuals entering the archival profession and for those with experience in the field. The certificate program provides a professional education to individuals wishing to identify, preserve, and make archival records accessible for use.

The Archival Administration certificate includes courses which teach students basic archival theory, methods and practice of appraisal, arrangement, description, preservation, reference, and the legal and ethical concerns regarding traditional, visual, and electronic records. In addition, other courses include records management, historical institutions and an archival practicum.

This program is open to students with baccalaureate degrees from accredited universities, students with advanced degrees, and students enrolled in other Wayne State University graduate programs.

## Admission Requirements

Admission to the School is contingent upon admission to the Graduate School (p. 21). In addition, Graduate Certificate in Archival Administration applicants must satisfy the following criteria:

1. Possess an undergraduate degree from an accredited college or university.
2. Have an undergraduate grade point average of 3.00 or better or possess another degree beyond the bachelor's degree. Applicants with an undergraduate grade point average between 2.50 and 2.99 can satisfy this requirement by one of the Alternative Admissions methods (<http://sis.wayne.edu/admissions/alternative-admissions.php>).
3. Meet the technology requirements (<http://sis.wayne.edu/admissions/technology.php>).
4. Submit a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) reflecting relevant personal and academic background and experience. The statement should be a minimum of 250 words and a maximum of 500 words (1-2 pages).
5. Submit a current resume or curriculum vitae.

### Application:

1. Complete and submit the online Graduate Admission Application form (<http://gradadmissions.wayne.edu/apply.php>).
2. Compose a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) and upload it to your application.
3. Upload a current resume or curriculum vitae with your application.
4. Pay \$50 application fee (<https://wayne.edu/admissions/graduate/admission-requirements/>).
5. Request official transcripts from each university you have attended and have them sent directly to Graduate Admissions (<https://gradschool.wayne.edu/contact/>), Wayne State University, Detroit, MI, 48202.

## Student Learning Outcomes - GCAA

Students who successfully complete the Graduate Certificate in Archival Administration at the Wayne State University School of Information Sciences will be able to:

1. Describe the history, intent, challenges, and issues of archival management as a profession.

2. Develop the ability to preserve, organize and create access for the historic record.
3. Recognize professional processes to identify, conserve, store, and re-format various informational forms from historic to current.
4. Analyze the intellectual content of archival material to create optimal access (i.e., archival description) and designate long-term historic importance (i.e., archival appraisal).
5. Translate archival theory into professional engagement to better their communities.
6. Determine the best uses of technology for archives and their communities.
7. Support and respect a diverse user base through research, communication skills, and collections.
8. Recognize the importance of advocacy, outreach, education, ethics, and professional values for an archive.
9. Apply leadership and best practices to manage, budget, and implement projects.

## Program Requirements

Students in graduate certificate programs at Wayne State must maintain a minimum grade point average of 3.0. The fifteen-credit Archival Administration Certificate includes nine credits of required coursework and six credits of elective coursework. Students working concurrently on the M.L.I.S. degree and the Certificate in Archival Administration are required to complete an additional six credits beyond the thirty-six required for the M.L.I.S. degree.

Students must complete fifteen credits selected from the following:

Code	Title	Credits
<b>Required Courses</b>		<b>9</b>
INF 7710	Archival Administration	3
INF 7780	Description and Access for Archives	3
INF 7970	Practicum: Archives	3
<b>Electives</b>		
Select two of the following:		6
INF 6780	Introduction to Records and Information Management	3
INF 7730	Administration of Audio Visual Collections	3
INF 7740	Archives and Libraries in the Digital World	3
INF 7750	Introduction to Archival and Library Conservation	3
INF 7770	Oral History: A Methodology for Research	3
INF 7885	Cultural Heritage Institutions: Management and Leadership	3

## Information Management (Graduate Certificate)

The Graduate Certificate in Information Management (IM) serves the needs of those who wish to enter the rapidly expanding information field. This certificate program seeks to provide students, librarians, and information professionals with the tools needed to use technology efficiently and effectively in gathering, storing, and disseminating information. Computers and productivity tools are helping knowledge workers in accessing information, generating insights, structuring results into a useful format, and producing knowledge simultaneously. The use of these productivity tools by knowledge workers requires that information professionals alter their perceived traditional professional role so that they can provide expanded services and support to these

knowledge workers as well as to continue to perform their traditional professional responsibilities.

The program is open to students with advanced degrees in related fields, students enrolled in the School of Information Sciences MLIS program or other Wayne State University graduate programs, and, on a case by case basis, students with baccalaureate degrees from accredited universities who possess the appropriate background experience.

## Admission Requirements

Admission to the School is contingent upon admission to the Graduate School (p. 21). In addition, Graduate Certificate in Information Management applicants must satisfy the following criteria:

1. Possess an undergraduate degree from an accredited college or university.
2. Have an undergraduate grade point average of 3.00 or better or possess another degree beyond the bachelor's degree. Applicants with an undergraduate grade point average between 2.50 and 2.99 can satisfy this requirement by one of the Alternative Admissions methods (<http://sis.wayne.edu/admissions/alternative-admissions.php>).
3. Meet the Technology Requirements (<http://sis.wayne.edu/admissions/technology.php>). Entering students with strong technology skills are encouraged to consider submitting a request to waive the prerequisite (<http://sis.wayne.edu/students/policies/waiver.php>), LIS 6080, Information Technology.
4. Submit a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) reflecting relevant personal and academic background and experience. The statement should be a minimum of 250 words and a maximum of 500 words (1-2 pages).
5. Submit a current resume or curriculum vitae.

## Application

1. Complete and submit the online Graduate Admission Application form (<http://gradadmissions.wayne.edu/apply.php>).
2. Compose a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) and upload it to your application.
3. Upload a current resume or curriculum vitae with your application.
4. Pay \$50 application fee (<https://wayne.edu/admissions/graduate/admission-requirements/>).
5. Request official transcripts from each university you have attended and have them sent directly to Graduate Admissions (<https://gradschool.wayne.edu/contact/>), Wayne State University, Detroit, MI, 48202.

## Student Learning Outcomes - GCIM

Students who successfully complete the Graduate Certificate in Information Management at the Wayne State University School of Information Sciences will be able to:

1. Utilize and assess technologies for the creation, production, manipulation, modeling, mining, analysis, control, distribution, access, and use of information.
2. Leverage databases and large datasets to uncover and present insights that drive decision-making.
3. Collaborate with organizations to present their products and services to their users and customers in the most accessible and useful manner.
4. Apply usability principles and methods in assessing and designing information services and products for better user experiences.

5. Analyze how information policies affect information creation, production, control, protection, distribution, access, use and evaluation in different socio-technical contexts.
6. Develop independent learning skills and appreciate the need for lifelong learning of information technologies.

## Program Requirements

Students admitted to the Information Management Graduate Certificate Program will be required to complete a minimum of 15 graduate credits. If this certificate is combined with the Master of Library and Information Science degree, 18 hours in the professional core, 15 hours in the Information Management specialization and 9 hours of elective courses will be required.

Students in graduate certificate programs at Wayne State must maintain a minimum grade point average of 3.0. Students working concurrently on the M.L.I.S. degree and the Certificate in Information Management are required to complete an additional six credits beyond the thirty-six required for the M.L.I.S. degree:

Code	Title	Credits
<b>Information Management Electives</b>		
INF 6050	Computer Programming	3
INF 6415	Project Management	3
INF 6420	Web Development	3
INF 6460	Database Design and SQL	3
INF 6490	Statistics and Data Analysis	3
INF 7440	Advanced Web Development	3
INF 7470	Information Architecture	3
INF 7491	Applied Data Analytics	3
INF 7492	Information Visualization	3
INF 7500	Information Behavior	3
INF 7610	Health Sciences Information Services and Resources	3
INF 7620	Health Informatics	3
INF 7960	Practicum: Information Management	3
INF 7455	Human-Computer Interaction	3
INF 8000	Seminar in Information Policy	3
INF 8850	Advanced Issues in Information Sciences	3

## Library and Information Science (Graduate Certificate)

The mission of the Graduate Certificate in Library and Information Science (GCLIS) is to equip pre or post-master's students with specialized competencies and problem solving abilities in a particular area of librarianship or information studies chosen from the wealth of courses offered by the School. For instance, if a GCLIS student would like to update his or her skills in a particular area, he or she may select courses that offer training in recent technologies, techniques, or skills that either were not obtained previously or have since become outdated. Additionally, a student might obtain the GCLIS in order to acquire the requisite training for new employment opportunities. Students may mix and match from the entire catalog of courses offered by the School.

## Admission Requirements

Admission to the School is contingent upon admission to the Graduate School (p. 21). In addition, Graduate Certificate in Library and Information Science applicants must satisfy the following criteria:

1. Possess an undergraduate degree from an accredited college or university.
2. Have an undergraduate grade point average of 3.00 or better or possess another degree beyond the bachelor's degree. Applicants with an undergraduate grade point average between 2.50 and 2.99 can satisfy this requirement by one of the Alternative Admissions methods (<http://sis.wayne.edu/admissions/alternative-admissions.php>).
3. Meet the technology requirements (<http://sis.wayne.edu/admissions/technology.php>).
4. Submit a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) reflecting relevant personal and academic background and experience. The statement should be a minimum of 250 words and a maximum of 500 words (1-2 pages).
5. Submit a current resume or curriculum vitae.

## Application

1. Complete and submit the online Graduate Admission Application form (<http://gradadmissions.wayne.edu/apply.php>).
2. Compose a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) and upload it to your application.
3. Upload a current resume or curriculum vitae with your application.
4. Pay \$50 application fee (<https://wayne.edu/admissions/graduate/admission-requirements/>).
5. Request official transcripts from each university you have attended and have them sent directly to Graduate Admissions (<https://gradschool.wayne.edu/contact/>), Wayne State University, Detroit, MI, 48202.

## Learning Outcomes - GCLIS

Students who successfully complete the Graduate Certificate in Library and Information Science at the Wayne State University School of Information Sciences will be able to:

1. Demonstrate competence in a specialized area of librarianship or information studies.
2. Demonstrate up-to-date knowledge in the rapidly-changing field of librarianship and information studies: chiefly the organization, storage, retrieval, and dissemination of the human record.
3. Use problem-solving and decision-making skills to plan, implement, and evaluate specialized library or information services.
4. Develop a specialized competence responsive to the changing economic, technological, or social climate.

## Program Requirements

The 15-credit GCLIS program includes 15 hours of coursework. For students completing the certificate only, INF 6080 —Information Technology or equivalent knowledge and skills are required as a pre-requisite. Students must maintain a 3.0 average and meet all School requirements for ongoing enrollment including a completed Plan of Work.

## Library and Information Science (Specialist Certificate)

The Specialist Program in Library and Information Science is a postmaster's certificate curriculum designed for the practicing professional who requires specialized competence in an area of librarianship or information management, such as public services, technical services, reference, or information technology. This program enables librarians to:

1. update knowledge in the rapidly changing field of librarianship and information management—the organization, storage, retrieval, and dissemination of the human record;
2. use investigative methods and research findings in problem-solving and in the planning and evaluation of library and information services;
3. advance and extend competencies in areas of specialization begun during the first professional degree program (M.L.I.S.). Specializations may be in a particular library function (such as organization of materials, retrieval of information, information technology, collection development, management, public relations, and adult education), or in a type of information center (such as public, school, academic, and special), or in a service to a specific target group (such as business and industry, early childhood, the elderly, the handicapped, the institutionalized);
4. develop a new specialization responsive to the changing economic, technological, or social climate or to changing conditions in the life of the individual information professional; and/or
5. achieve other professional goals, as needed.

**Admission** to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants to the Specialist program in Library and Information Science must satisfy the following criteria:

1. Possess a master's degree in library and information science.
2. Have professional employment experience as a librarian or information specialist.
3. Submit a goals statement reflecting relevant personal and academic background and experience.
4. Submit a current resume or curriculum vitae.
5. Demonstrate professional competence, leadership, and potential for further growth.
6. Meet the SLIS Technology Requirements (<http://www.slis.wayne.edu/technology-requirements.php>).

Candidates for the Specialist Certificate in Library and Information Science must complete thirty credits of 6000-8000 level course work providing the appropriate degree of concentration relevant to the student's career goals. Students in specialist certificate programs at Wayne State must maintain a minimum grade point average of 3.0. A Plan of Work and prescribed courses will be developed in consultation with a faculty advisor.

## Public Library Services to Children and Young Adults (Graduate Certificate)

The Graduate Certificate in Public Library Services to Children and Young Adults is intended for: practicing library professionals who need to advance their competency in the field of children and youth services; SIS graduate students wishing to pursue a professional career in children and youth services; and graduate students from other disciplines and professions who wish to obtain public library and youth services skills to aid their organizations in meeting community needs.

Children and young adults comprise a high proportion of the patrons of public libraries - from large urban library systems to suburban library districts to small rural independent libraries. Services to children and young adults requires specialized training in the development of programs, the creation of effective collections, and the skills necessary to collaborate with community organizations who serve children and young adults. Students completing the certificate will be able to: develop effective programs and outreach services for children and young adults in public libraries; create appropriate collections, both

print and electronic, for children and young adults in public libraries; and collaborate with community agencies, such as schools, social services, health organizations, to provide needed instruction and support for children and young adults.

## Admission Requirements

Admission to the School is contingent upon admission to the Graduate School (p. 21). In addition, Graduate Certificate in Public Library Services to Children and Young Adults applicants must satisfy the following criteria:

1. Possess an undergraduate degree from an accredited college or university. Possess a Masters in Library and Information Science degree or equivalent, or be currently enrolled in a Masters in Library and Information Science degree program.
2. Have an undergraduate grade point average of 3.00 or better or possess another degree beyond the bachelor's degree. Applicants with an undergraduate grade point average between 2.50 and 2.99 can satisfy this requirement by one of the Alternative Admissions methods (<http://sis.wayne.edu/admissions/alternative-admissions.php>).
3. Meet the technology requirements (<http://sis.wayne.edu/admissions/technology.php>).
4. Submit a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) reflecting relevant personal and academic background and experience. The statement should be a minimum of 250 words and a maximum of 500 words (1-2 pages).
5. Submit a current resume or curriculum vitae.

### Application:

1. Complete and submit the online Graduate Admission Application form (<http://gradadmissions.wayne.edu/apply.php>).
2. Compose a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) and upload it to your application.
3. Upload a current resume or curriculum vitae with your application.
4. Pay \$50 application fee (<https://wayne.edu/admissions/graduate/admission-requirements/>).
5. Request official transcripts from each university you have attended and have them sent directly to Graduate Admissions (<https://gradschool.wayne.edu/contact/>), Wayne State University, Detroit, MI, 48202.

## Student Learning Outcomes - GCPLSC

Students who successfully complete the Graduate Certificate in Public Library Services to Children and Young Adults at the Wayne State University School of Information Sciences will be able to:

1. Develop effective programs and outreach services for children and young adults in public libraries.
2. Create appropriate collections, both print and electronic, for children and young adults in public libraries.
3. Collaborate with community agencies, such as schools, social services and health organizations, to provide needed instruction and support for children and young adults.
4. Apply leadership principles to creating environments for children and young adults that respond to diversity and cultural needs of the community.

## Program Requirements

The certificate may be completed in conjunction with the MLIS degree or as a post-MLIS certificate. The fifteen-credit Public Library Services to

Children and Young Adults Certificate program includes nine credits of required coursework and six credits of electives. Students choose from among a wide range of elective courses related to children's literature, bibliographic instruction and practical experiences for six hours to complete the certificate.

As with other certificates, nine credits of this certificate may be used toward completion of the Master's degree requirements.

Code	Title	Credits
<b>Required Courses</b>		
INF 6420	Web Development	3
INF 7250	Programming and Services for Children and Young Adults	3
INF 7340	Collection Development and Selection of Materials	3
<b>Elective Courses</b>		
Select six credits of the following:		6
INF 6520	Beyond Books: Youth Literature in Action	
INF 6530	Young Adult Literature	
INF 6850	Issues in Information Sciences (permission of lead instructor)	
INF 7880	Instructional Methods for Librarians	
INF 7950	Practicum: Library Services	
<b>Total Credits</b>		<b>15</b>



# Information Science (M.S.I.S.)

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations (p. 24) section of this bulletin. The following additions and amendments pertain to the School of Information Sciences.

The M.S. in Information Science uniquely prepares students to be successful in data-intensive and user-centric environments. This degree prepares students to support data-driven problem-solving and decision-making in diverse fields. With this degree, students will develop skills necessary to assess, adopt, and utilize information technologies to design positive user experiences and obtain useful insights.

Today, information is a crucial resource – be it social, mobile, cloud or big data. Information professionals with the expertise to find, capture, master, and deliver information are in higher demand than ever before. The M.S. in Information Science provides the core analytical and problem-solving skills necessary to stay competitive and excel in today's data-intensive, information-rich environments.

## Admission Requirements

Admission to the School is contingent upon admission to the Graduate School (p. 21). In addition, applicants must satisfy the following criteria:

1. Possess an undergraduate degree from an accredited college or university.
2. Have an undergraduate grade point average of 3.00 or better or possess another degree beyond the bachelor's degree. Applicants with an undergraduate grade point average between 2.50 and 2.99 can satisfy this requirement by one of the Alternative Admissions methods (<http://sis.wayne.edu/admissions/alternative-admissions.php>).
3. Meet the Technology Requirements ([http://sis.wayne.edu/admissions/msim\\_technology.php](http://sis.wayne.edu/admissions/msim_technology.php)) and Technical Competencies ([http://sis.wayne.edu/admissions/msim\\_tech\\_competencies.php](http://sis.wayne.edu/admissions/msim_tech_competencies.php)).
4. Submit a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) addressing your experience and familiarity with the required technical competencies needed for admission to the Master of Science in Information Science degree. The statement should be a minimum of 250 words and a maximum of 500 words (1-2 pages).
5. Submit a current resume or curriculum vitae.
6. MSIM students are expected to complete an online New Student Orientation (<http://sis.wayne.edu/admissions/onlineorientationdetails.php>) prior to starting classes.

## Application

1. Complete and submit the online Graduate Admission Application form (<http://gradadmissions.wayne.edu/apply.php>).
2. Compose a personal statement and upload it to your application.
3. Upload a current resume or curriculum vitae with your application.
4. Pay \$50 application fee.
5. Request official transcripts from each university you have attended and have them sent directly to Graduate Admissions, Wayne State University, Detroit, MI, 48202.

## Learning Outcomes

Students who successfully complete the M.S. in Information Science at the Wayne State University School of Information Sciences will be able to:

1. Utilize and assess technologies for the creation, production, manipulation, modeling, mining, analysis, control, distribution, access, and use of information.
2. Leverage databases and datasets to uncover and present insights that drive decision-making.
3. Apply principles and methods towards assessing and designing information services and products for better user experiences.
4. Analyze how information policies affect information creation, production, control, protection, distribution, access, use and evaluation in different socio-technical contexts.
5. Develop independent learning skills and appreciate the need for lifelong learning of information technologies.

## Program Requirements

The Master of Science in Information Management is offered only as a Plan C master's program. A maximum of six credits in courses outside of library and information science may be accepted as cognates. Students must maintain a minimum grade point average of 3.0.

The 30-credit MSIM degree includes 4 required courses, an elective practicum, and 5 elective courses, organized into a variety of specializations. Students are free to combine elective courses to craft a customized Plan of Work that satisfies the student's particular needs.

### Required Courses

Code	Title	Credits
INF 6010	Information in Society	3
INF 6050	Computer Programming	3
INF 6460	Database Design and SQL	3
INF 6490	Statistics and Data Analysis	3
Elective Practicum		3

### Elective Courses

Code	Title	Credits
<b>Software Tools</b>		
INF 6050	Computer Programming	
INF 6420	Web Development	
INF 7440	Advanced Web Development	
<b>Web-Based Information Services</b>		
INF 6050	Computer Programming	
INF 6420	Web Development	
INF 7470	Information Architecture	
INF 8000	Seminar in Information Policy	
<b>Data Analytics</b>		
INF 6050	Computer Programming	
INF 6490	Statistics and Data Analysis	
INF 7491	Applied Data Analytics	
INF 7492	Information Visualization	
INF 8000	Seminar in Information Policy	
<b>Health and Scientific Data Management</b>		
INF 6050	Computer Programming	
INF 7491	Applied Data Analytics	
INF 7492	Information Visualization	
INF 7610	Health Sciences Information Services and Resources	
INF 7620	Health Informatics	
INF 8000	Seminar in Information Policy	

### User Experience

INF 6050	Computer Programming
INF 6420	Web Development
INF 7470	Information Architecture
INF 7500	Information Behavior
INF 7455	Human-Computer Interaction

[gradschool.wayne.edu/contact/](http://gradschool.wayne.edu/contact/)), Wayne State University, Detroit, MI, 48202.

## Library and Information Science (M.L.I.S.)

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations (p. 24) section of this bulletin. The following additions and amendments pertain to the School of Information Sciences.

The accredited Master of Library and Information Science (MLIS) degree prepares professionals for leadership roles in libraries and other information organizations. By emphasizing the practical application of knowledge and skills, we educate students in the core principles of information management access, organization, services and support as well as emerging fields such as digital collections, competitive intelligence, information architecture and data analytics. The MLIS degree is available online.

## Admission Requirements

Admission to the School is contingent upon admission to the Graduate School (p. 21). In addition, Master of Library and Information Science applicants must satisfy the following criteria:

1. Possess an undergraduate degree from an accredited college or university.
2. Have an undergraduate grade point average of 3.00 or better or possess another degree beyond the bachelor's degree. Applicants with an undergraduate grade point average between 2.50 and 2.99 can satisfy this requirement by one of the Alternative Admissions methods (<http://sis.wayne.edu/admissions/alternative-admissions.php>).
3. Meet the MLIS Technology Requirements (<http://sis.wayne.edu/admissions/technology.php>). Entering students with strong technology skills are encouraged to consider submitting a request to waive the core course (<http://sis.wayne.edu/students/policies/waiver.php>), LIS 6080, Information Technology.
4. Submit a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) reflecting relevant personal and academic background and experience. The statement should be a minimum of 250 words and a maximum of 500 words (1-2 pages).
5. Submit a current resume or curriculum vitae.
6. MLIS students are expected to complete an online New Student Orientation (<http://sis.wayne.edu/admissions/onlineorientationdetails.php>) prior to starting classes.

## Application

1. Complete and submit the online Graduate Admission Application form (<http://gradadmissions.wayne.edu/apply.php>).
2. Compose a personal statement ([http://sis.wayne.edu/forms/personal\\_statement.pdf](http://sis.wayne.edu/forms/personal_statement.pdf)) and upload it to your application.
3. Upload a current resume or curriculum vitae with your application.
4. Pay \$50 application fee (<https://wayne.edu/admissions/graduate/admission-requirements/>).
5. Request official transcripts from each university you have attended and have them sent directly to Graduate Admissions (<https://>

## Learning Outcomes – Master of Library and Information Science

Students who successfully complete the Master of Library and Information Science degree at the Wayne State University School of Library and Information Science will be able to:

1. Critically evaluate, synthesize, and disseminate information.
2. Understand how complex interactions between diverse users, societal factors, and information environments affect professional situations.
3. Facilitate access to, and use of, information resources between users and communities.
4. Apply multiple and emerging approaches to the organization of knowledge for varied literatures, records, and historical documents.
5. Articulate and advocate for the foundations of the profession and its basic values and ethics such as intellectual freedom, information access and dissemination, and apply these principles to the advancement of the profession.
6. Determine the significance of intellectual property, security, and privacy issues.
7. Assess, adopt, and utilize the most relevant information technologies.
8. Utilize current management and leadership theories and practices in the workplace.
9. Evaluate and apply library and information science research to problems of professional practice by employing theories, best practices, and assessment strategies to the range of information functions.
10. Practice professional engagement through leadership, service work, lifelong learning and community involvement.

## Program Requirements

The Master of Library and Information Science is offered only as a Plan C master's program, requiring a minimum of thirty-six credits to be distributed as follows: Eighteen credits in the library and information science professional core, and eighteen credits in elective professional courses.

Code	Title	Credits
<b>Professional Core</b>		<b>18</b>
INF 6010	Information in Society	
INF 6080	Fundamentals of Information Technology	
or INF 6050	Computer Programming	
or INF 6420	Web Development	
or INF 6460	Database Design and SQL	
INF 6120	Access to Information	
INF 6210	Organization of Information	
INF 7040	Management and Leadership	
INF 7996	Research for the Information Professions	
<b>Professional Specialization</b>		<b>18</b>
<b>Total Credits</b>		<b>36</b>

A maximum of six credits in courses outside of library and information science may be accepted as cognates. Students must maintain a minimum grade point average of 3.0.

A Plan of Work is a formal statement of the goals and prescribed courses of a student's academic program. SIS requires that a Plan of Work be

submitted after completion of nine credits of graduate course work. The Plan is prepared in consultation with the faculty advisor and may be organized around one or more areas of specialization. The emphasis may relate to the type of environment in which the student intends to work or to specialized job activities or functions. Faculty advisors will assist the student in devising an optimal Plan of Work that meets the student's academic goals. Please visit the program's website (<https://sis.wayne.edu/mlis/>) for more information on the selection of elective courses.

## Library and Information Science and History (M.A./M.L.I.S. Joint Degree)

Joint-degree programs allow students to earn two degrees with fewer credits than if the degrees are earned separately. Students who enroll in the joint program will earn both the M.L.I.S. and M.A. in History degree. Graduates will increase their job market potential and be prepared to enter a new workforce that is capable of appraising and describing historical records, creating websites, and preserving electronic documents. Candidates must complete the required courses as outlined for both programs in order to graduate. Core courses in one program may not be used as elective courses in the other; fourteen credits of electives may be double-counted.

### Requirements: Library and Information Science

Students will complete twenty-nine credits in core and elective Information Science courses and seven credits in History elective courses.

Code	Title	Credits
<b>Required INF Courses</b>		
INF 6010	Information in Society	3
INF 6080	Fundamentals of Information Technology	3
INF 6120	Access to Information	3
INF 6210	Organization of Information	3
INF 7040	Management and Leadership	3
INF 7996	Research for the Information Professions	3
<b>Elective Courses</b>		
INF Elective Courses		11
HIS Elective Courses		7
<b>Total Credits</b>		<b>36</b>

### Requirements: History

Students will complete twenty-three credits of History courses and seven credits of Information Science elective courses.

Code	Title	Credits
HIS 7830	Methods and Research in History	3
HIS 7999	Master's Essay Direction	3
HIS electives (17 cr.), including:		17
At least one 8000-level History seminar		
No more than two (2) courses may be taken at the 5000- or 6000-level without permission of the advisor and DGS (granted by their signatures on the Plan of Work); 5000- and 6000-level courses must be offered for graduate credit to count toward the MA degree		
INF courses (7 cr.)		7
<b>Total Credits</b>		<b>30</b>

Total for both degrees: fifty-three credits (no more than thirteen credits may be double-counted).

## Library and Information Science and Public History (M.A.P.H./M.L.I.S. Joint Degree)

Students in this joint program will earn both the MAPH and an MLIS degree. Graduates of the program benefit from the joint preparation in public history and library and information science and increase their potential for finding employment in either field. Students are prepared to enter a new workforce with the skills to appraise and describe historical records, create and maintain websites, preserve electronic documents, and communicate with a public audience. Upon successful completion of this program students will be prepared for employment in a wide range of settings, including libraries, archives, museums, state and federal agencies, and the private sector.

Public history is applied history, and the MAPH leads to employment in occupations as diverse as museum work, library and archival research, public policy analysis, documentary filmmaking, state and national parks, and tourism. Public historians provide an essential service by making historical scholarship accessible to a broad public audience. Libraries, archives, and other institutions that hire information management professionals increasingly seek employees who can communicate with broad public audiences about their collections and holdings, and who can create exhibits and public programming. The MAPH/MLIS joint degree program responds to the changing professional expectations for librarians and archivists.

**Applicants to this program must be admitted to both the School of Information Sciences and Department of History MAPH program.**

Students complete a minimum of 55 credits total for both degrees (14 hours are double-counted). For the MAPH degree, students complete 33 hours of MAPH credits, inclusive of 8 hours of INF credits that will also count toward the student's MLIS degree. In SIS, students complete 30 hours of LIS credits and 6 hours of History credits, for a total of 36 credits. The History credits would also count toward the student's MAPH electives.

### Requirements: Library and Information Science

The MLIS degree requires 36 credits (including 6 credits of HIS courses).

Code	Title	Credits
INF 6010	Information in Society	3
INF 6080	Fundamentals of Information Technology	3
INF 6120	Access to Information	3
INF 6210	Organization of Information	3
INF 7040	Management and Leadership	3
INF 7996	Research for the Information Professions	3
INF course electives - Students should use INF electives to fulfill the MAPH methodology and public history elective requirements.		12
HIS course electives		6
<b>Total Credits</b>		<b>36</b>

### Requirements: Public History

The MAPH degree requires 33 credits (Including 8 credits of INF courses). The course work includes 15 credits in core coursework, and 18 credits of MAPH Track requirements.

## Core courses

Code	Title	Credits
HIS 7835	Public History	3
HIS 7855	Memory and History	3
HIS 7998	Internship in Public History	3
HIS 7999	Master's Essay Direction	3
INF 7710	Archival Administration	3
or INF 7740	Archives and Libraries in the Digital World	
or INF 7770	Oral History: A Methodology for Research	
<b>Total Credits</b>		<b>15</b>

## MAPH Track Requirements

Code	Title	Credits
Core course		3
History seminar		3
History electives		6
Public History electives - students in the joint MAPH/MLIS program must select two from among a variety of INF elective courses, including:		6
INF 7440	Advanced Web Development	
INF 7710	Archival Administration	
INF 7730	Administration of Audio Visual Collections	
INF 7740	Archives and Libraries in the Digital World	
INF 7770	Oral History: A Methodology for Research	
INF 7780	Description and Access for Archives	
INF 7885	Cultural Heritage Institutions: Management and Leadership	
<b>Total Credits</b>		<b>18</b>

# Law School

Dean: Richard Bierschbach

Wayne State University Law School, founded in 1927, is located in the heart of Detroit's historic cultural center, offering a unique urban experience. Detroit's vibrant legal market including government offices, state and federal courts, multinational corporations, unions and major law firms provides students with a wide range of opportunities for employment and externships. Our students are bright, mature, conscientious and altruistic. They come from unique backgrounds and professions, some having previously served as doctors, musicians, actors, engineers and law enforcement officers before pursuing the law. Wayne Law also offers a network of more than 11,000 living alumni, including established leaders of the legal community, practicing throughout the nation and in more than a dozen foreign countries. Our expert faculty's nationally and internationally recognized scholarship adds depth to our students' understanding of legal theory, doctrine and practice. Wayne Law students, faculty and alumni are deeply engaged in the community and profession.

## Accreditation & National Recognition

Wayne State University Law School is accredited by the American Bar Association and is a member of the Association of American Law Schools. The Law School has a chapter of the Order of the Coif, the national honorary society dedicated to the highest standards of legal scholarship.

## Setting & Facilities

The Law School is a flagship unit of Wayne State University, a major metropolitan research university located in the heart of Midtown, about four miles from downtown Detroit. Within blocks of the Law School are the Detroit Public Library, Detroit Institute of Arts, Charles H. Wright Museum of African American History, Detroit Science Center and other cultural attractions. The city of Detroit shares an international border with Canada and offers access to Michigan's largest concentration of law firms and state and federal courts.

The Law School complex includes four buildings - Classroom Building, Damon J. Keith Center for Civil Rights, Law Building and Arthur Neef Law Library with lounges, gathering areas and meeting rooms. The three-floor Arthur Neef Law Library offers print and digital resources, a computer lab, 14 study rooms and wireless access. Special collections cover antitrust law, international law, Jewish law and Michigan law.

## Degrees

The Law School offers academic programs leading to the degrees of Juris Doctor (J.D.), Master of Laws (LL.M.), and Master of Studies in Law (M.S.L.). The J.D. is a graduate degree requiring a baccalaureate degree as a prerequisite. The LL.M. is a graduate degree offered by the Law School in the fields of and corporate and finance law, labor and employment law, and taxation which requires the J.D. or its equivalent as a prerequisite. The M.S.L. is a graduate degree requiring a baccalaureate degree as a prerequisite to help business professionals expand their knowledge of legal principles and the U.S. legal system. The Law School also participates in joint degree programs with other Schools and Colleges within the University.

## Damon J. Keith Center for Civil Rights

The Damon J. Keith Center for Civil Rights at Wayne Law is a regional hub for civil rights teaching, research and advocacy, training and inspiring the next generation of civil rights leaders in honor of the legacy of Judge Damon J. Keith. At the center, stakeholders gather to analyze policy, law students teach a civil rights curriculum to high school students and leaders dive into the issues of the day, such as tax foreclosures, water shutoffs and police-community relations. The center welcomes the public for lectures by civil rights icons, supports community-based organizations and publishes scholarship about how the law and social justice impact one another. The center offers the nation's first and only repository dedicated to African-American legal history, along with a traveling exhibit about the 14th Amendment's guarantee of equal protection under the law.

In summer 2014, WSU was awarded a three-year, \$1.3 million grant from the W.K. Kellogg Foundation to launch the Detroit Equity Action Lab at the Keith Center. Through this initiative, 60 leaders working in the many dimensions of racial equity, including arts and media, community development, education, environment, food security, health care and housing, will address issues of structural racism in Detroit.

## Arthur Neef Law Library

The Arthur Neef Law Library provides a major legal research center for Wayne Law students and faculty. Its special collections include the Alwyn V. Freeman International Law Collection, Driker Antitrust Law Collection, Jewish Law Collection and a comprehensive collection of current and historical Michigan law materials that include the Michigan Supreme Court Records and Briefs, Michigan probate court opinions and Michigan Superfund site documents. The law library is a selective depository for U.S. government publications. Databases and other e-resources are easily discoverable and remotely accessible.

The law library building was designed to make optimal use of natural light in reading and study areas. Tables, carrels and soft-seating areas are available throughout the law library and offer wired and wireless access to networked resources. Our students may reserve any of the 14 study rooms through an online reservation system. A computer lab featuring desktop computers, printers and scanners is reserved for the exclusive use of Wayne Law students.



# Admissions Policies and Procedures (J.D. Program)

## Preparation for law study

The Law School has no requirements with respect to the content of an applicant's undergraduate education, but the Admissions Committee will take into account the nature of college work completed as well as the grades achieved. Proficiency in the English language, both written and spoken, and in analytical skills is essential to the study of law. The suggestions for pre-law preparation in the ABA-LSAC Official Guide to ABA-Approved Law Schools are excellent. The book may be ordered from the Law School Admission Council (<http://lsac.org>) and is available in most bookstores and libraries.

## Admissions Policy

The Law School enrolls one class per year. Each class begins in August. Applications are accepted from Oct. 1 through August 1. Admission to Wayne Law is selective, and there is a great deal of competition to be a member of an entering class.

The Admissions Office uses rolling admissions. As applications become complete they are evaluated for a decision. Applicants are strongly encouraged to apply early since the class fills rapidly as the deadline approaches.

An applicant for admission to the J.D. program must have a bachelor's degree from an accredited college or university or apply pursuant to an articulation agreement with an undergraduate institution that grants the degree upon successful completion of all required first year courses in the Law School. A final official transcript must be sent to the Law School before enrolling.

Each applicant also must take the Law School Admission Test (LSAT) and register with the Law School Data Assembly Service (LSDAS). The Law School requires that students educated in a foreign country submit their transcripts through the Law School Admission Council J.D. Credential Assembly Service. Applicants who completed any post-secondary work outside of the United States, its territories or Canada must use this service for the evaluation of foreign transcripts. The one exception to this requirement is any foreign work completed through a study abroad, consortium or exchange program sponsored by a U.S. or Canadian institution where the work is clearly indicated as such on the home campus transcript.

Applicants must take the LSAT no later than June of the year in which they intend to enroll. The Admissions Office will accept LSAT test scores that are up to five years old.

## Admissions decisions

At Wayne Law, we use a holistic approach in evaluating applicants. Every application is thoroughly read by an admissions professional and members of the Faculty Admissions Committee. The Admissions Committee considers positively the following factors in reaching admissions decisions:

1. an applicant's academic achievement and potential, as shown by their LSAT score and Grade Point Average;
2. an applicant's demonstrated capacity to overcome or persevere against:
  - a. socioeconomic disadvantage, whether the applicant would be the first generation of their family to attend or graduate from college or professional program and whether they were employed or raising a family while attending school; or

- b. substantial obstacles such as family or personal adversity, attendance at an under-performing school (elementary, middle or high school), and prejudice or discrimination;
3. any special circumstances suggesting that the applicant's LSAT score or academic record doesn't accurately reflect their current academic potential, such as the age of the applicant's GPA; a marked improvement in grades shown in the later years of college; or other special circumstances the candidate conveys in his or her personal statement or elsewhere in the application; and
4. other factors that foster a diverse and engaged law school environment, such as geographic residence (including in the city of Detroit), work and volunteer experience, leadership qualities, commitment to community and public service, communication skills, multilingual proficiency, and experience of life in a foreign country or on a Native American tribal reservation.

## Deferred admissions

The Law School does not defer admissions except for persons called to military service. Any admittee who withdraws from the class must submit a new application and fee for the next year for which he or she seeks admission.

## Reduced program

The first-year day program curriculum is mandatory, but, under special circumstances including child-care responsibilities, significant health care concerns, or as part of an ADA accommodation; students may be permitted to take a slightly reduced course load. The applicant must submit a written request to the Assistant Dean of Admissions prior to registration setting forth the personal circumstance justifying the request for admission as a reduced load student. Such written requests will be evaluated on a case-by-case basis.

## Reconsideration

An applicant may request reconsideration of an adverse admissions decision by writing a letter to the Assistant Dean of Admissions stating the specific reason(s) why reconsideration is merited. The application then will be reviewed by the Admissions Committee. Applicants who have successfully petitioned for reconsideration are those who have submitted updated information, such as improved test scores or additional grades.

## Application procedures (J.D. applicants)

Admission to the J.D. program at Wayne Law is highly competitive. Wayne Law receives a large number of applications. Every application receives careful, individualized attention by the Wayne Law Admissions Office and our faculty Admissions Committee. A variety of factors are taken into consideration. Typically, only about 40 percent of applicants are offered admission.

## First-year applicants

Application requirements for those seeking admission as first-year students are as follows:

1. Complete the online application form (<https://os.lsac.org/Release/Logon/Access.aspx>) with an electronic signature. The deadline for application is August 1. To receive priority consideration for scholarships, your application must be complete by March 15.
2. Include with your application a brief personal statement, written by you in your own words. You can use this statement to convey to the Admissions Committee any experiences, interests, unusual circumstances or other information you believe may help the committee evaluate your potential for success at the Law School. Because we don't conduct individual interviews, your personal

statement is the best way for you to tell us what you would most like us to know about you.

3. Have the Law School Admission Council submit a copy of your JD-CAS report (which includes copies of transcripts from all U.S. undergraduate schools) to the Law School. If you earned your bachelor's (or equivalent) degree from a college or university outside the United States, its territories or Canada, you must use a credential evaluation service. We prefer use of the JD-CAS, but we also will accept evaluations from organizations that are members of the National Association of Credential Evaluation Services or Association of International Credentials Evaluators.
4. Arrange for the submission of two letters of recommendation. The letters should be from individuals such as college professors or others who can comment on your intellectual abilities and academic performance. If you have been out of school for a number of years, you may submit letters of recommendation from an employer. Letters of recommendation should be sent directly to the Law School Admission Council. Additionally, two Law School Admission Council evaluations are recommended but not required.

## Transfer applicants

A transfer applicant must have completed all of the first-year day or evening courses required by his or her ABA-accredited law school. Transfer students are admitted to the fall term only. The application deadline for transfer applicants is July 1.

A transfer applicant's file will be ready for review when the Admissions Office has received all of the following:

1. The Law School online application with an electronic signature.
2. An official transcript sent directly from the applicant's law school with all grades posted for the academic year.
3. A letter of good standing from the applicant's law school.
4. A JD-CAS report.

## Guest student applicants for fall and/or winter terms

The transfer applicant requirements and procedures outlined above apply to a law student who wishes to enroll at Wayne Law for one or two terms as a guest student. Application deadline is July 1 for fall term and Nov. 1 for winter term.

In the case of a guest student, the letter of good standing also should include a statement granting permission for the applicant to attend Wayne Law for the semester(s) indicated and an agreement to accept credits earned at the Law School and any other requirements or limitations from the "home" law school.

The application deadline for fall is July 1. The application deadline for winter is Nov. 1.

## Guest student for summer term

A student from another ABA-accredited law school may take one or two summer courses at Wayne Law provided the student is in good standing and receives permission from his or her "home" law school. Application should be made by submitting the Law School summer guest application form. Application deadline is May 15 for summer term.

# Law (J.D.)

## Academic Regulations

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations (p. 24) section in the Graduate Bulletin. The following additions and

amendments are a brief overview of the specific additional and other Academic Regulations that pertain to the Law School.

The faculty of the Law School has adopted Academic Regulations which cover degree requirements, examinations and other academic matters. From time to time throughout the year, the Academic Regulations are updated, so the regulations shown here may not be those currently in force. The most current and complete Academic Regulations are available in the Law School Records Office or on the Law School (<https://law.wayne.edu>) website. Compliance with the regulations is required of all law students.

## First-year program

Wayne Law offers three program options for the first year of study to meet the various needs of a diverse student body. They include a full-time day program, a combined day and evening program, and a part-time evening program.

- **Full-time day program** – students take all courses during the day, completing 30 credits in their first year, 15 credits each semester
- **Combined day/evening program** – students take three courses at night, as well as one or two day courses each semester, completing 22 to 30 credits in their first year, 11 to 15 credits each semester
- **Part-time evening program** – students take three courses all at night, completing 16 credits in their first year, eight credits each semester

First-year students learn fundamental legal theory, as well as how to identify and analyze legal issues, through introductory courses including: Civil Procedure A & B, Constitutional Law I, Contracts, Criminal Law, Legal Research and Writing, Property, and Torts.

## Upper-class program

Wayne Law offers a wide range of courses that prepare graduates for an evolving legal environment. Our faculty's extensive knowledge and experience allow the Law School the flexibility to adapt courses and programming to shifting legal trends. From health law, public interest law, and international law to corporate law, environmental law and more, you'll find what you're looking for at Wayne Law.

## Clinics

Wayne Law's client clinics are directed by full-time expert faculty members and help bridge the gap between theory and practice. Located on or close to campus and offered for credit, our clinics provide hands-on casework to law students while simultaneously assisting residents of the Detroit metropolitan community.

The Law School offers seven clinics:

- Appeal and Post-Conviction Advocacy Clinic
- Asylum and Immigration Law Clinic
- Business and Community Law Clinic
- Community Advocacy Clinic
- Disability Law Clinic
- Legal Advocacy for People with Cancer Clinic
- Immigration Appellate Advocacy Clinic

## Externships

Externships are an integral part of the experiential learning program at Wayne Law. Students who elect to complete an externship earn academic credit while gaining practical experience outside the Law School walls. Externships develop students' professional skills, values and judgment as they learn about professionalism, the practice of law and the legal

system, while becoming reflective practitioners with the capacity for self-directed professional growth.

Wayne Law offers five externship programs:

- Corporate Counsel Externship
- Holistic Defense Externship
- Judicial Externship
- Lawyering in the Nation's Capital Externship
- Public Service Externship

## Co-curricular programs

Wayne Law students gain an edge through a number of co-curricular programs designed to sharpen minds and heighten capabilities. Students gain hands-on experience through a number of organizations dedicated to promoting a friendly yet competitive atmosphere and shaping legal minds.

Co-curricular programs are:

- Jessup International Law Moot Court
- Moot Court
- Mock Trial
- Wayne State Jaffe Transactional Law Competition
- The Journal of Law in Society
- Journal of Business Law
- Wayne Law Review

## Joint Degree Programs

The Law School offers, in conjunction with other colleges of the university, six joint degree programs that allow students to earn both degree and a master's degree in one of the following disciplines:

- Business administration (M.B.A.)
- Criminal justice (M.S.)
- Joint J.D./LL.M.
- Economics (M.A.)
- History (M.A.)
- Political science (M.A.)

## Intellectual Property Law Institute

Since several Wayne State University Law School faculty members are experts in areas of intellectual property law, the Law School is able to offer a remarkable variety of courses in such areas as patent, copyright and trademark law.

In addition to these courses, Law School students have the opportunity to take courses at another Detroit law school and at a law school across the border in Canada through the Intellectual Property Law Institute. The Institute was created in 1987 as a cooperative effort of the law faculties of Wayne State University, University of Detroit Mercy and University of Windsor in Ontario. The institute offers an exceptional, rich curriculum for law students with courses and seminars in patents, copyrights, trademarks, trade secrets and know-how, computers and related technology, communications and media, entertainment, technology transfer, trade regulation and the arts. Full-time students at each of the three law schools may register for any institute course and will pay the tuition required at their home institution. The course will be credited toward their law degree.

## Levin Center for Oversight and Democracy

Established in 2015, the Levin Center for Oversight and Democracy educates future attorneys, business leaders, legislators and public servants on their role overseeing public and private institutions and using oversight as an instrument of change. Through academic programming, training and research, the Center will equip future lawyers, legislators and leaders with an understanding of how effective legislative oversight can lead to significant and meaningful changes in public policy.

The Center hopes to inspire and train a new generation to embrace their responsibility to ensure public and private institutions operate with integrity, transparency and accountability to the general public in honor of former U.S. Sen. Carl Levin's distinguished career in public service.

## Program for Entrepreneurship and Business Law

The Program for Entrepreneurship and Business Law coordinates Wayne Law's broad array of business law courses, clinics, externships, and extracurricular/co-curricular and community engagement activities.

The breadth of the field of business and corporate law is reflected in Wayne Law's extensive business curriculum, taught by widely recognized full-time faculty.

Wayne Law also offers numerous experiential learning and extracurricular and co-curricular activities designed to prepare students to represent entrepreneurs or to become entrepreneurs themselves while supporting entrepreneurship and business development in metro Detroit. In addition, the Law School offers students the chance to represent real clients on real legal matters through the Business and Community Law Clinic.

The Program for Entrepreneurship and Business Law helps aspiring business owners in underserved communities participate in the economic revival of Detroit. The program offers early-stage legal assistance to participating local startups and creates forums for entrepreneurs to receive general legal guidance, access community resources and share their own business experience.

## Program for International Legal Studies

International law cuts across all aspects of a Wayne Law legal education. One-third of the faculty teaches and writes on international subjects, and faculty members enjoy world-wide reputations as innovative and prolific scholars. Classes are available on a remarkable range of global topics. Wayne Law's Jessup International Law Moot Court Team has won the Midwest championship two of the past three years.

The Program for International Legal Studies offers students the opportunity to explore international law through classes, summer internships abroad and co-curricular activities. It hosts an annual lecture series that brings renowned international law experts to campus. The program also hosts conferences on critical issues in international law. In addition, the program sponsors opportunities for students to work on international legal issues firsthand.

## Bar Admission

Wayne Law is committed to helping our students succeed in law school and pass the bar examination. We believe this journey starts in your first year of law school, as students begin to master the first-year law courses and continues through the middle and final years at Wayne Law. Our programs are designed to provide additional bar support, using diagnostic exams to predict areas that students should focus on as well as free programs to enhance essay writing skills.

In addition to our programs, we provide expert individual advice and guidance. Wayne Law students graduate with the tools and support to start bar examination preparation and ultimately to be successful in the bar exam.

Student Affairs encourages students to begin preliminary bar preparation in their first year and can help students create a bar exam plan for each of their years at Wayne Law.

## Degree Requirements

Students should consult Section I of the Law School Academic Regulations (<https://law.wayne.edu/academics/>) for a complete list of the requirements for the J.D. degree. Following are some of the most important requirements:

- **Total credits required.** You must complete 86 credits with a cumulative grade point average of 2.0 or better.
- **Required courses.** You must successfully complete Civil Procedure A & B, Constitutional Law I, Contracts A & B, Criminal Law, Legal Research and Writing, Property, and Torts in the first year of law school. Professional Responsibility and the Legal Profession must be successfully completed as an upper-level student.
- **Upper-class writing requirement.** To satisfy the upper-class writing requirement you must participate in a class or activity offering a rigorous writing experience after your first year and submit both required certificates to the Records Office. Qualifying activities include Appellate Advocacy, a directed study paper, and participation on Wayne Law Review, The Journal of Law in Society or The Journal of Business Law. You also may satisfy the requirement by taking any other course, clinic, workshop or seminar with a substantial writing requirement, but only if you submit to the Records Office both signed certificates by the appropriate deadlines.
  - **Professional skills and experiential learning requirement.** If you started at the Law School between the fall 2005 semester and the summer 2013 semester, you must complete the professional skills requirement by taking a curricular offering of two or more credits that provides substantial instruction in professional skills beyond traditional legal research, writing and analysis. If you started at the Law School in the fall 2013 or thereafter, you must complete the professional skills and experiential learning requirement by taking at least six credits of curricular offerings that provide substantial instruction in professional skills beyond traditional legal research, writing and analysis. At least three of these required credits must be a clinic, externship practicum or externship colloquium offering three or more credits that provides substantial instruction in professional skills beyond traditional legal research, writing and analysis. The courses that meet this requirement are:
    - Clinics – Appeal and Post-Conviction Advocacy Clinic, Asylum and Immigration Law Clinic, Business and Community Law Clinic, Community Advocacy Clinic, Disability Law Clinic, Immigration Appellate Advocacy Clinic, and Legal Advocacy for People with Cancer Clinic.
    - Externships – Corporate Counsel Externship: Practicum, Corporate Counsel Externship: Colloquium, Holistic Defense Externship: Practicum, Holistic Defense Externship: Colloquium, Judicial Externship: Practicum, Judicial Externship: Colloquium, Lawyering in the Nation's Capital Externship: Practicum, Lawyering in the Nation's Capital Externship: Colloquium, Public Service Externship: Practicum, and Public Service Externship: Colloquium.
    - Courses and seminars – Alternative Dispute Resolution, Antitrust and Trade Regulation: Current Issues Seminar, Business Planning, Contract Drafting Seminar, Criminal

Pretrial Advocacy, Effective Oral Communication for Lawyers Seminar, Interviewing & Counseling, Mock Trial Workshop, Negotiation, Patent Application Preparation, Patent Prosecution, Peacemaking in State Court Justice Systems, Pretrial Advocacy, and Trial Advocacy.

You may not use the same course, seminar or clinic to satisfy both the upper-class writing requirement and the professional skills requirement.

- **Residence credit requirement.** You must be enrolled in, and earn credit for, courses at the Law School for at least four fall or winter semesters, whether continuous or not, except in extraordinary circumstances as determined by the Dean or the Dean's designee.
- **Time limit for completing graduation requirements.** While transfer between programs is possible, a J.D. student who enters the Law School as a full-time student must complete the requirement for the J.D. degree within five years of starting the program, and a student who enters as a part-time student must complete the requirements within six years.
- **Limitation on clinical and externship courses.** Students may take not more than 14 credits of clinical and externship courses toward completion of degree requirements.
- **Transfer credits.** The Law School will transfer up to 30 credits from all American Bar Association-approved law schools for courses in which the student received a grade of "C" or better. If a course is graded on a Pass/Fail or No Credit scale, the Law School only will transfer credits with a certification from the institution that a Pass is equal to a grade of "C" or better. The Law School will transfer the credits upon receipt of an official transcript sent directly from the credit-granting institution. Transfer credits are reviewed by the Assistant Dean of Student Affairs in conjunction with the Registrar. The student's Law School transcript will show credit, but not grades, for courses carried and completed at other law schools. A transfer student only may receive credit for a course taken at the Law School that substantially overlaps with coursework taken at another school with the advance permission of the Assistant Dean of Student Affairs.

The above represents only a summary of the requirements for graduation. To be sure you understand all of the requirements you should carefully consult the Law School Academic Regulations.

## Law (J.D. /LL.M. Joint Degree)

Applicants must meet requirements for admission to the Graduate School (p. 21). Applicants must also have at least a 3.0 cumulative G.P.A. in their J.D. courses at the time of application to the joint degree program, as well as a B or better in any J.D. courses to be credited towards the LL.M. degree. Students will be formally admitted to the LL.M. program upon completion of the J.D. degree requirements, assuming that they continue to satisfy the requirements for admission.

Students interested in the J.D. degree program should apply to the joint degree program after completing their 1L year but before entering their 3L year (or upon completion of equivalent credits, if part-time students). Students would work with Wayne Law's Assistant Dean of Non-J.D. Programs to plan their courses for the 2L and 3L years, as applicable, to include appropriate courses that are creditable towards the LL.M. major they elect to pursue.

The J.D. degree requires a 1L curriculum consisting of Civil Procedure A and B, Constitutional Law I, Contracts A and B, Criminal Law, Legal Research and Writing, Property, and Torts. J.D. students must also take the upper-level course Professional Responsibility and the Legal Profession and satisfy an experiential learning requirement through clinic, externship or professional skills/simulation courses as well as an upper-



level writing requirement. J.D. students must complete a total of 86 credit hours at a 2.00 G.P.A. or higher to receive the degree.

The LL.M. majors each have certain required courses and a list of approved courses, as set out in the Master of Laws Academic Regulations. LL.M. majors also have a small number of elective credits that may be taken outside the list of approved and required courses. A maximum of 12 credits may be double-counted towards both degrees. The credits that will count towards the LL.M. degree from the J.D. courses include the LL.M. required courses and additional specified courses from the list of approved courses for that major. Courses taken in the J.D. program that are neither required for the LL.M. major nor on the approved list for that major cannot be credited to both the J.D. and LL.M. degrees.

## Law (LL.M.)

Lawyers who already have received a J.D. degree from an accredited U.S. law school or an equivalent degree in another country and satisfy Wayne Law's LL.M. admissions criteria are eligible to undertake advanced legal studies for a master of laws (LL.M.) degree at Wayne Law.

## Majors

Domestic and international students seeking specialized legal knowledge and skills may undertake an LL.M. degree with a major in one of the following substantive law areas:

- Corporate and finance law
- Labor and employment law
- Taxation
- U.S. law (open to international students who seek a general understanding of the U.S. legal system to enhance their home country practice)

## Admission Requirements

The basic requirement for admission to the LL.M. program is a demonstration of sufficient ability to be a successful student. This ability may be demonstrated by a record that includes the following:

1. A J.D. (or LL.B.) degree from a law school that is approved by the American Bar Association and is a member of the Association of American Law Schools.
2. A J.D. (or LL.B.) degree from a law school that is approved by the American Bar Association but is not a member of the Association of American Law Schools, but only if the applicant has compiled a distinguished academic record at that law school.
3. The equivalent of a J.D. or LL.B. degree from a law school outside the United States at which the applicant compiled a distinguished academic record. Applicants must receive a score of 600 or above on the Test of English as a Foreign Language (TOEFL), or 250 or above on the computer-based TOEFL, or 100 or above on the internet-based TOEFL, or 7.0 or above on the International English Language Testing System (IELTS) exam, although a waiver of this requirement may be granted based on other evidence of English language competency. Individuals are ineligible for admission to the United States Law LL.M. Program if they have received a J.D. degree from a U.S. law school.
4. In extraordinary cases, the Graduate Committee, on the recommendation of the director of graduate studies, may admit to the LL.M. degree program an applicant who has graduated from a United States law school that is not approved by the American Bar Association if the applicant has been admitted to practice without limitation in one of the states of the United States and has clearly demonstrated by experience, academic performance and other qualifications the ability to perform well in the LL.M. program. The

director of graduate studies shall sign and place in the student's file a statement of the considerations that led to the decision to admit the applicant.

*Each state applies its own criteria for allowing applicants to take the bar examination and for admitting attorneys to practice law. Completion of the LL.M. degree does not qualify a student to apply for permission to take the bar exam in every state. Lawyers from other countries seeking to practice law in the United States should obtain information regarding the requirements for admission to the bar in the state(s) in which they wish to practice.*

## How to Apply

Admission to this program is contingent upon admission to the Graduate School (p. 21).

Among the required documents are "official transcripts." Official transcripts are those issued directly by your previous institution. They usually include a school imprint, seal, or original signature and stamp of the registrar or senior school official. Transcripts cannot be transmitted via the applicant and must be sent by the institution to Wayne State University and cannot read "issued to student." Electronic transcripts will be accepted if they are delivered securely from the registrar of the issuing institution directly to the Office of Graduate Admissions.

Specific questions about the program may be directed to the director of graduate studies (llmprogram@wayne.edu).

LL.M. application deadlines are:

- Nov. 1 - winter term
- March 15 - spring/summer term
- July 1 - fall term

Applicants from abroad are encouraged to apply substantially earlier to allow sufficient time to obtain the necessary visa and other documents.

## Degree Requirements

The requirements and expectations for the LL.M. degree are set forth in the Master of Laws Academic Regulations, which should be read in conjunction with the Wayne Law Academic Regulations.

The LL.M. curriculum includes day and evening courses taught by nationally recognized faculty and expert practitioners. Each LL.M. major requires that a student take specified core courses and allows a student to select electives from a large list of law courses approved for credit toward that particular major. In addition, LL.M. students majoring in one of the substantive law areas may select electives from among approved courses for their majors in other university departments or schools, such as business, finance and industrial relations. (Certain restrictions apply if equivalent courses are offered in the Law School in the same academic year.) LL.M. students other than those majoring in U.S. law also must complete a master's thesis, written and researched in collaboration with a faculty adviser, as the capstone of their studies.

Courses are offered during three terms with the broadest offerings in the fall semester (beginning in late August) and winter semester (beginning in January). Additional courses are offered in the summer/ spring term (beginning in mid-May). Course scheduling changes from year to year depending on faculty teaching commitments, but tentative schedules for two-year cycles are available on the website so that students can plan their pathways to the degree. Students should consult with the LL.M. program director and faculty in their major areas to determine reasonable schedules of courses.

Although students may initiate their LL.M. degree studies in the winter semester, students are encouraged to enroll in the fall semester so they



can participate in the fall orientation program for new students (generally offered in the week prior to the commencement of the fall semester) and register for core courses (such as Taxation for tax majors, Corporations for corporate and finance law majors or Survey of U.S. Law for U.S. law majors) that may not be offered in the winter semester and are often prerequisites for more advanced study.

LL.M. students are permitted to take up to six years to complete their degree. Full-time students usually can complete their LL.M. coursework in one year (often including work on the master's thesis over the summer), while part-time study generally requires two or more years.

## Law - Studies in Law (M.S.L.)

Wayne State University Law School's online Master of Studies in Law (M.S.L.) (<https://law.wayne.edu/msl/>) degree is specifically designed for professionals to expand their knowledge of legal principles and the U.S. legal system, through one of two concentrations:

1. Human Resources
2. Health Law

The M.S.L. degree requires the satisfactory completion of 30 credits of online coursework. The program is offered on a part-time basis but the requirements must be completed within six years. The curriculum includes required, core courses and electives meant to introduce students to law, practical applications of law, best practices and current topics. All coursework must be completed in accordance with the regulations of the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the Law School (<https://law.wayne.edu/msl-regulations/>) governing graduate scholarship and degrees.

*Please note that the M.S.L. degree does not qualify one to take a bar exam or practice law.*

# College of Liberal Arts and Sciences

Dean: Stephanie Hartwell

The College of Liberal Arts and Sciences comprises the traditional academic disciplines and may be considered the academic core of the University. Composed of nineteen departments, a variety of programs, and over 400 faculty members, the college is able to offer a rich and broad-based education in the liberal arts and sciences. Curricula leading to master's and doctoral degrees are offered in the physical and natural sciences, mathematics, the social sciences and the humanities. Some programs provide practical training and lead to professional certification. Most doctoral programs acquaint students with methods used in scholarly inquiry and require students to complete an independent research study. Students thus contribute to the University's mission to increase fundamental knowledge and apply that knowledge to the betterment of the human condition. Faculty in the College of Liberal Arts and Sciences have been recognized nationally and internationally for their important contributions to research and for their scholarly publications. Working with these faculty mentors, graduate students acquire an education that leads to the joy of intellectual discovery and its application in the real world.

# Academic Regulations for the College of Liberal Arts and Sciences

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations (p. 24) section of this bulletin. The following additions and amendments pertain to the College of Liberal Arts and Sciences.

## Graduate Programs Admission Requirements

Admission to any graduate degree program is contingent upon meeting the admission requirements of the Graduate School (p. 21).

Preference is given to those students who have achieved superior undergraduate scholastic records and who evidence superior abilities.

All credits prerequisite to a degree or certificate program must be earned prior to or concurrent with the initial graduate credits applicable to the program. If undergraduate preparation for the major field is considered deficient, additional coursework may be required at the undergraduate level. Many programs have additional individual admission requirements. Students should consult the subsequent departmental sections in this bulletin for specific requirements in each field of study.

## Graduate Record Examinations

The Graduate Record Examination (GRE) is used to assist advisors in evaluating educational preparation and to serve as a basis for planning future study. There is no uniform policy concerning GREs. Some departments require GRE scores from all applicants for admission, while others require scores only from students in specified classifications. Students should consult the department in which they wish to major to determine which examinations must be taken.

Students required to take these examinations must apply at the Testing and Evaluation Office, 698 Student Center, either prior to or at the time of admission. Students who previously have taken the examination may have transcripts of these scores submitted. After the initial registration, no subsequent enrollment will be permitted nor will candidacy be authorized until examination requirements have been fulfilled.

## AGRADE – Accelerated Graduate Enrollment

The College of Liberal Arts and Sciences has established an accelerated combined undergraduate and graduate program ('AGRADE') whereby qualified seniors in the College of Liberal Arts and Sciences may enroll simultaneously in some undergraduate and graduate programs of the College. A maximum of sixteen credits may be applied towards both undergraduate and graduate degrees in a student's major field if the major department is an 'AGRADE' participant. (Students should contact the chairperson of their major department to ascertain its 'AGRADE' status.) Those who elect the 'AGRADE' program may expect to complete the Bachelor's and Master's degrees in five years of full-time study.

**Eligibility:** Applicants must meet overall and major minimum grade point average requirements, which vary dependent on program; see specific programs for details.

For more details about the 'AGRADE' program, contact the Graduate Director of the major department or the Graduate Office of the College of Liberal Arts and Sciences (313-577-2516).

**Application:** A student seeking 'AGRADE' status should present to the Graduate Admissions Committee of his/her major department all of

the materials which that department requires for normal admission, EXCEPT for the Graduate Record Examination (GRE) required by some departments. For departments in which the GRE is required, it is expected that this examination will be taken at the normal time and scores forwarded to the major department. Specific departmental admission requirements can be found in this bulletin or obtained from the Graduate Office of the College of Liberal Arts and Sciences (313-577-5188).

The earliest date by which a student may apply for the 'AGRADE' program is during the semester in which he/she completes ninety credits toward the undergraduate degree.

**AGRADE Credits:** Students may elect a minimum of three and a maximum of sixteen 'AGRADE' credits. These credits will be used to complete the baccalaureate degree as well as to serve as the beginning of graduate study. Upon formal admission to a master's program, 'AGRADE' credits are transferred as if they were graduate credits transferred from a graduate program at another university. The remaining graduate credits required for the master's degree will be earned in the conventional manner following formal admission to the graduate program. Formal admission to the graduate program occurs as AGRADE students complete their baccalaureate degree.

For more details about the 'AGRADE' program, contact the chairperson of the department in which 'AGRADE' enrollment is sought or the Graduate Office of the College of Liberal Arts and Sciences (313-577-5188).

## Degree Requirements

Graduate degrees are conferred not merely upon the completion of a prescribed number of courses nor necessarily after a given period of residence, but rather in recognition of each candidate's outstanding ability and high achievement as evidenced in all course work, research, scholarly writing, examinations and personal fitness for a chosen profession. All course work must be completed in accordance with the academic procedures of the Graduate School and College of Liberal Arts and Sciences. In addition to the general Graduate School requirements for degrees (p. 33) and to the information provided below, other requirements are specified by the individual graduate departments. Students should consult the programs and requirements of the departments in which they plan to major.

## Candidacy

Candidacy is an advanced status recommended by student advisors and authorized by the Graduate School or Liberal Arts and Sciences Graduate Office upon evidence of superior scholarship, appropriate personal qualities and promise of professional competence. Students should note that admission as an applicant does not assure acceptance as a candidate for a degree, and that candidacy is a necessary but not sufficient requirement for graduation.

To be eligible for candidacy, students must file officially approved Plans of Work. The Plan should provide for effective concentration in a major field, with proper supporting courses in related fields. Ph.D. applicants should file their Plan with the Graduate School; master's applicants should file with the graduate officer of the College of Liberal Arts and Sciences. In preparing a Plan, students should evaluate with care their personal and professional objectives as well as all degree and departmental requirements. Normally, a student enrolled in a master's degree program is expected to file a Plan of Work by the time twelve graduate credits or their equivalent have been earned.

It is recommended that an approved Plan be filed by applicants for the Ph.D. degree before approximately forty credits beyond the baccalaureate degree have been earned. In addition to filing the Plan, students must satisfy any foreign language requirements.

Candidacy is reached after the Plan of Work has been approved, the final Qualifying Examination has been passed, approximately fifty credits have been completed, and the dissertation committee has been named.

## Commencement

Information concerning commencement announcements, caps and gowns, invitations, tickets, time and place, assembling and other relevant items will be mailed to graduates by the Alumni Office prior to the event. Candidates for advanced degrees are requested and expected to attend the commencement at which the University confers upon them the honor of the degree earned.

## Master's Degree Requirements

In most master's degree programs, the minimum requirement for the degree is thirty-two credits under either Plans A, B, or C as cited below. At least twenty-four credits must be taken in residence. At least six credits of coursework in the major field, in addition to the essay or thesis, must be in courses open only to graduate students (courses numbered 7000 and above).

**Plan A** requires at least twenty-four credits of course work plus a six to eight credit thesis.

**Plan B** requires at least twenty-seven credits of course work plus a three credit essay.

**Plan C** requires at least thirty credits of course work; an essay or thesis is not required. Most departments require a final comprehensive examination as part of Plan C

Students should consult a departmental advisor for details on the availability of Plan A, B or C in their major field.

Requirements vary by department; see listings under the individual departments for exact information. In accordance with the time limitation of the Graduate School, all requirements for the master's degree must be completed within a six-year period.

## Doctoral Degree Requirements

### Preliminary Qualifying Ph.D. Examination

Responsibility for preliminary qualifying examinations is vested in the graduate faculty of each department, specifically in its committee on doctoral study. Accordingly, committees may require this examination of all candidates or of any candidate prior to the final qualifying examination.

### Final Qualifying Ph.D. Examination for Candidacy

The final qualifying examination is required of all applicants and will be a written examination. It may also contain an oral portion if the department requires one. Consult the specific department for requirements.

The written qualifying examination will cover the applicant's major and minor areas and may include such other related matters as the doctoral examining committee may prescribe. If an oral qualifying examination is required, it will be conducted by the departmental qualifying examination committee within sixty days after the written qualifying examination has been passed. This examination will relate to the subject matter of the written examination, the applicant's major and minor areas and other pertinent matters.

If an examining committee does NOT certify that the applicant has passed either the written or oral examinations, it must make specific recommendations with reference to admitting the applicant to a second examination and specify any additional work that should be completed

prior to such an examination. If a second examination is held, it must be scheduled within one calendar year and shall be considered final.

Selection of the student's doctoral committee, including one member from outside the student's department, is a requirement for candidacy. Substitutions in the membership of this committee may be made prior to submission of the Outline and Record Form to the Graduate School. After this form is approved, any change in committee membership requires written approval from the Graduate School. This committee conducts the final dissertation defense.

## Essays, Theses, and Dissertations

There is no prescribed format for the master's essay. Essay guidelines, indicating standard style manuals for each department and title-page samples, are available in the Liberal Arts and Sciences Graduate Office, 2155 Old Main.

Master's degree candidates under the essay plan register for the course numbered 7999, Master's Essay Direction, in the department of their major; a total of three credits must be elected.

The original copy of the essay should be submitted to the Liberal Arts and Sciences Graduate Office after it is approved and signed by the advisor. This copy will be returned to the department.

The thesis or dissertation *must be an original work, either in or definitely related to the student's major area of specialization*. If proper standards of quality, objectivity, originality, and independence are maintained, candidates may use data that they have derived from their University research. Neither the results of the research nor the publication of findings can be restricted by any non-University agency nor can they be published prior to acceptance of the dissertation by the Graduate School unless prior approval of such publication has been obtained from the advisor. Advisors have primary responsibility for approval of the essay or thesis, but every member of a doctoral committee must read, approve and sign the dissertation.

Students may not begin work on a manuscript until they have submitted an approved Plan of Work and outline form. They may then register for the thesis or dissertation credits and pay regular fees in the same manner as for all other course work.

Master's candidates under the thesis plan register for the course numbered 8999 in the department of their major. This course is entitled *Master's Thesis Research and Direction* and must be elected for a total of eight credits. Ph.D. candidates must enroll in thirty credits of doctoral dissertation direction. The thirty credit dissertation registration requirement is fulfilled by registering for the courses 9991, 9992, 9993, and 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively) offered under various subject area codes, in consecutive academic year semesters.

## Theses/Dissertation Outline and Record Form

Before students begin working on theses or dissertations, they must file outlines and record forms. Master's candidates must prepare three copies which, after receiving departmental approval, will be forwarded to the Liberal Arts and Sciences Graduate Office. Doctoral candidates must prepare four copies which, after receiving departmental approval, will be forwarded to the Graduate School.

# Anthropology

Office: 3054 Faculty Administration Building; 313-577-2935

Chairperson: Krysta Ryzewski

Graduate Director: Yuson Jung

<http://clas.wayne.edu/anthropology> (<http://clas.wayne.edu/anthropology/>)

Anthropology is a comparative social science that seeks to uncover principles that govern human behavior. Anthropology includes the four fields of cultural, biological, archaeological, and linguistic anthropology. Departmental strengths include applied anthropology, medical anthropology, historical archaeology, museum studies, cultural resource management / public archaeology, business / organizational anthropology, language and cognition, urban anthropology, paleo-diet, foodways, environmental anthropology, land-use studies, global health, and social entrepreneurship.

The Anthropology Department offers five different graduate degree options: Master of Arts (MA), Doctor of Philosophy in Anthropology (Ph.D.), and two joint PhD programs in Social Work & Anthropology (SWAN), Anthropology and Urban Sustainability (T-RUST) and MD-PhD.

Alumni from Wayne State's Anthropology graduate programs are readily employed in a wide range of areas. Some work in traditional institutions such as colleges, universities, and museums, but many are employed in public and private settings. These include health, governmental, international, and social agencies, business and organizational settings, public policy, research and development, design, as well as in positions within government, non-profit, and cultural institutions that require environmental management, historic preservation, archaeology, cultural heritage, and museum-based skills. A master's degree in Anthropology can prepare students for advanced study in professions such as medicine or law. Accordingly, graduate programs in Anthropology are designed to accommodate a variety of specific student interests and objectives.

Individuals who hold degrees in fields other than anthropology and desire admission to graduate degree programs will be individually reviewed. Admission will be granted at the discretion of the Graduate Committee after review of the applicant's background, training, and academic standing; supplementary work may also be individually prescribed.

**Academic Scholarship:** All course work completed to satisfy the following degree requirements must be done in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234). All students are required to obtain a grade of 'B' in each course that counts toward the degree. A grade of 'B-minus' or below in two courses will be sufficient reason to dismiss a student from a graduate program.

To repeat a course, a student will need to submit a "Petition to Repeat a Graduate Course" form to the Graduate Committee for consideration. Students may not repeat a class without prior approval.

The Department only allows two course repeats for a class where a student receives an insufficient grade.

- Anthropology (M.A.) (p. 236)
- Anthropology (Ph.D.) (p. 237)
- Anthropology and Urban Sustainability (Ph.D. Dual-Title) (p. 238)
- Social Work and Anthropology SWAN (Ph.D.) (p. 238)
- Museum Practice (Graduate Certificate) (p. 240)

# Anthropology (M.A.)

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Additionally, applicants must satisfy the following:

1. The student must have completed ANT 1100 (Introduction to Anthropology) or its equivalent. Admission may be granted while this deficiency is remedied.
2. The student must submit three letters of recommendation.
3. The student must submit a letter of intent outlining his/her research interests and intentions in the field of anthropology, so that the Department may determine if the student's goals are compatible with its available expertise. The student may also mention any life history experience which may be helpful in the decision to admit.
4. A writing sample such as a research paper for a previous course.
5. The student may arrange for his/her Graduate Record Examination (GRE) scores to be sent to the department if he or she wishes.
6. The student must have an undergraduate grade point average (g.p.a.) of at least 3.2. Admission may be granted in exceptional cases where the grade point average is less than 3.2. Admission is contingent upon g.p.a., GRE scores (if applicable), recommendations, the compatibility of research and educational goals with Departmental resources, and the availability of openings in programs with high demand.
7. All applications and admissions material must be submitted to the Office of Graduate Admissions by the following deadlines: October 1 for admittance to the Winter Semester, and January 15 for admittance in the following Fall Semester.

## AGRADE Program (B.A to M.A)

The Department of Anthropology offers the Accelerated Graduate Enrollment (AGRADE) Program provides the opportunity for top students to enroll simultaneously in an undergraduate and graduate program. The AGRADE allows qualified full-time students to complete the Master's degree in Anthropology usually within one year of their undergraduate degree.

Students can apply a maximum of 16 credits towards both an undergraduate and a graduate degree in the student's major field. Students electing AGRADE programs may expect to complete the bachelor's and master's degrees in five years of full-time study.

Students must apply for an AGRADE program during the semester that they earn 90 credits toward an undergraduate degree – typically during junior year. Applicants must have a cumulative GPA at the cum laude level (20<sup>th</sup> percentile, or a minimum of 3.5) and not less than a 3.6 GPA in the major courses already completed.

## Program Requirements

Students pursuing the M.A. in anthropology have two options, referred to as Plans B and C, below.

ANT 7005 is required for all first-year graduate students.

Students must file a plan of work prior to the completion of twelve credits and must petition the Graduate Committee for any exceptions to the M.A. requirements.

The following courses, or their equivalents, must be completed either as an undergraduate (see note below) or graduate student.



Code	Title	Credits
<b>Core <sup>1</sup></b>		<b>15</b>
ANT 5140	Biology and Culture	
ANT 5270	Concepts and Techniques in Archaeology	
ANT 5320	Language and Societies	
ANT 5700	Applied Anthropology	
ANT 7005	Proseminar in Anthropology I	
<b>Methods Options</b>		
Select one of the following (in consultation with advisor):		<b>4</b>
ANT 5210	Anthropological Methods	
ANT 5280	Field Work in Archaeology of the Americas	
<b>Electives</b>		<b>12</b>
Select four additional courses (at least one anthropology seminar at the 7000 level) in consultation with advisor:		
ANT 7xxx - Seminar		
Elective		
Elective		
Elective		
<b>Graduation Requirements</b>		
Select one of the following:		<b>3</b>
ANT 7900	Synthesis (Plan C) <sup>2</sup>	
ANT 7999	Master's Essay Direction (Plan B) <sup>3</sup>	
<b>Total Credits</b>		<b>34</b>

<sup>1</sup> Students entering the M.A. program with a B.A. from WSU who have completed any of the core courses for undergraduate credit (with a grade of 'B' or better) do not need to repeat them, however, they must replace the credits with any other ANT 5000 or higher level course chosen in consultation with their advisor.

<sup>2</sup> ANT 7900 is an integrative, holistic and comparative course that synthesizes diverse analytical perspectives and methodologies.

<sup>3</sup> The M.A. essay, ANT 7999, is a shorter piece of independent work (often 30-60 pages double-spaced) and intended to be written within a single term.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

Additional information regarding this program is available from the department upon request.

## AGRADE Program (Accelerated Graduate Enrollment)

This program enables qualified seniors in the College of Liberal Arts and Sciences to enroll simultaneously in the undergraduate and graduate programs of the College. Students may apply for the AGRADE Program during the term in which they will complete ninety credits; to qualify, students must have cumulative GPA of 3.3 or higher. For more details about the AGRADE Program, contact the Academic Advisor in the Anthropology Department.

## Anthropology (Ph.D.) Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Only a limited number of applicants who have demonstrated superior ability can be accepted in this program.

In addition to the transcripts and other materials required by the Graduate School, the Department requires all materials cited above for admission to the Master of Arts program; curriculum vitae; writing sample, three letters of recommendation, and letter of intent. An applicant's admissibility into the doctoral program will not be reviewed until all these materials have been received.

All application and admissions materials must be submitted to the Office of Graduate Admissions by January 15 to begin in the Fall semester.

The *Plan of Work* must be submitted before forty credits have been completed and before the qualifying examination is scheduled.

## Program Requirements

The Doctor of Philosophy requires ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credit.

A minimum of thirty credits of graduate work must be at the 7000-level or above (excluding dissertation credits). Students must petition the Graduate Committee for course equivalents, substitutes, or any other exceptions to the Ph.D. requirements. The student is expected to command in detail theories, concepts, methodology, and research techniques in common usage in the student's subfield of concentration (cultural anthropology, linguistics, archaeology, or biological anthropology).

In the Qualifying Examinations, the student must demonstrate, by written examination, competence in depth in at least three areas of specialization relating to the dissertation topic, including mastery of a broad range of theoretical materials and an ability to think and write analytically. After passing the Qualifying Examinations and prior to beginning fieldwork, the student must submit the following documents:

1. an oral defense of the dissertation prospectus and an approved doctoral dissertation outline and record of approval form;
2. a prospectus; and
3. a Human Investigations Committee Behavioral Protocol Summary Form, when applicable.

Once the student has attained candidate status, he/she is required to register for doctoral dissertation credits. Students must register for 9000-level credits (ANT 9991, ANT 9992, ANT 9993, and ANT 9994) through the Graduate Office and must fulfill 7.5 credits in these courses each semester for four consecutive semesters (excluding spring-summer). All course work completed to satisfy the following degree requirements must be done in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

Additionally, the student is expected to:

1. complete substantial field research, which will ordinarily be of sufficient duration and scope to provide materials for the student's dissertation (in the case of biological anthropology and some other specializations, the dissertation may be based on laboratory research); and
2. submit an acceptable dissertation and present a final lecture.

**Coursework:** The following courses, or their equivalents, must be completed:

Code	Title	Credits
<b>Core</b>		
ANT 5140	Biology and Culture	3
ANT 5210	Anthropological Methods	4
ANT 5270	Concepts and Techniques in Archaeology	3

ANT 5320	Language and Societies	3
ANT 7005	Proseminar in Anthropology I	3
ANT 7010	Proseminar in Anthropology II	3
ANT 7030	Debates in Anthropology	3
ANT 7780	Conceptualizing the Dissertation	3
<b>Methods Options</b>		
Select one of the following:		4
ANT 7200	Qualitative Modes of Inquiry and Methods	
ANT 6570	Archaeological Laboratory Analysis	
Graduate work in a discipline other than Anthropology		3
3 7000-level seminars in anthropology		9
Elective credits in anthropology or other allied fields		19
ANT 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
ANT 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
ANT 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
ANT 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
<b>Total Credits</b>		<b>90</b>

**Foreign Language Requirement:** Doctoral students must demonstrate a proficiency in an approved scholarly language. In conjunction with your faculty advisor you will identify the language other than English most relevant to your scholarly work. This should be a language that has a substantial scholarly literature, such as a relevant academic journal. Your advisor, or another faculty member in the department, will select a scholarly passage in that language, roughly 300 words in length, on a subject related to your dissertation research. You have 90 minutes to complete the examination with the aid of a printed bilingual dictionary, but no electronic aids.

**Additional Information:** A more detailed discussion of the doctoral program is available from the department (<http://clas.wayne.edu/anthropology/>). Students should also consult the Graduate School's general requirements for doctoral degrees (p. ).

## Anthropology and Urban Sustainability (Ph.D. Dual-Title)

Students admitted to the Ph.D. program in Anthropology can apply to earn a Ph.D. in Anthropology with a dual-title in Urban Sustainability. This dual-title degree is designed to prepare professionals to solve challenging urban problems that require working across disciplines. Students enrolled in this dual title program take courses in topics and develop specific skills relating to urban sustainability. Students in Anthropology will also conduct an internship or science exchange in Urban Sustainability, help develop and participate in colloquia and seminars, perform community service, and write funding proposals. The dual-title coursework follows competencies outlined by the Transformative Research in Urban Sustainability Training program.

Applicants must meet the admissions standards of the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/admission/>) and the Department of Anthropology and be first offered admission to the Anthropology doctoral program.

Students are required to take six core courses plus 12 elective credits of Urban Sustainability coursework. A minimum of 7 of the 12 elective

credits must be from coursework outside of the student's home department.

Code	Title	Credits
<b>Core Courses</b>		
ANT 5060	Urban Anthropology	
BIO 7310	Sustainability of Urban Environmental Systems	
CE 5410	Energy, Emissions, Environment (E3) Design	
COM 7170	Health and Risk Communication	
GS 0900	Essential Research Practices: Responsible Conduct of Research	
UP 6470	Environmental Planning	
<b>Elective Courses</b>		
ANT 5565	Urban Archaeology	
ANT 6570	Archaeological Laboratory Analysis	
BIO 5040	Biometry	
BIO 5180	Field Investigations in Biological Sciences	
BIO 6420	Ecotoxicology and Risk Assessment	
BIO 7011/ PHC 7410	Principles of Toxicology	
BIO 7540	Landscape Ecology	
CE 6270	Sustainability Assessment and Management	
CE/PSC 6910	Pharmaceutical Waste: Environmental Impact and Management	
CE 7280	Applied Environmental Microbiology	
CE 7995	Special Topics in Civil Engineering II <sup>1</sup>	
COM 7160	Crisis Communication	
ECO 6200	Advanced Regulation and Regulated Industries	
ECO 6520	Advanced State and Local Public Finance	
ECO 6800	Advanced Urban and Regional Economics	
FPH 7420	Principles of Environmental Health	
ESG 5000	Geological Site Assessment	
ESG 5510	Environmental Fate and Transport of Pollutants	
ESG 5610	Special Topics in Environmental Science and Geology	
LEX 7231	Environmental Law	
UP 5110	Urban Planning Process	
UP 5430	Cities and Food	
UP 6120	Planning Studies and Methods	
UP 6260	Land Use Policy and Planning	
UP 6700	Geographic Information Systems	

<sup>1</sup> In order to satisfy the elective requirement, the topic area must be relevant to the program. Students should consult with their advisor for details.

## Social Work and Anthropology (SWAN Ph.D.)

*An admissions moratorium is in effect for this program.*

The Social Work/Anthropology (SWAN) doctoral degree draws on the strengths of both fields in theory, social history, research, policy and practice. The SWAN degree combines the approaches of each discipline to make use of the program's urban location to foster scholarship focusing on global issues of the 21st century, such as the re-invention of post-industrial cities. Students receive a thorough grounding in the theoretical and applied aspects of both Social Work and Anthropology

and apply this knowledge to pursue scholarship in such areas of interest as urbanism, globalization, and social/cultural organization. SWAN students follow a curriculum that draws from existing courses in each discipline, including a core course that focuses on the integration of the two fields. Content combining the perspectives of both disciplines is included in the qualifying exam and dissertation research requirements for the degree.

This program prepares scholars for work in several different occupations, including faculty positions in social work and anthropology as well as work in governmental, non-profit, and international settings.

**Academic Scholarship:** All course work completed to satisfy the following degree requirements must be done in accordance with the academic regulations (p. 24) of the Graduate School. All students are required to maintain a 'B' average. A grade of 'B-minus' or below in two courses will be sufficient reason to dismiss a student from the program.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Only a limited number of applicants who have demonstrated superior ability and potential will be accepted in this program.

Prospective students should apply for admission to either the Social Work or Anthropology Ph.D. programs and specify, using a pull-down menu, their request for admission to the SWAN program. They must meet the admissions standards of both the Graduate School and the SWAN program. Students who do not possess an MSW should apply separately to the MSW program and notify the SW doctoral director of their application to both the MSW and SWAN programs. All application and admission materials must be submitted to the Office of Graduate Admissions by January 10 to begin in the following fall semester.

The Plan of Work must be submitted before forty credits have been completed and before the qualifying examination is scheduled.

The Doctor of Philosophy requires ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credits.

A minimum of thirty credits of graduate work must be at the 7000-level or above (excluding dissertation credits). Students must petition the SWAN Steering Committee for course equivalents, substitutes, or any other exceptions to the SWAN requirements.

Once the student has attained candidate status, he/she is required to register for doctoral dissertation credits. Students must register for 9000-level credits (SW 9991, SW 9992, ANT 9993, and ANT 9994) through the Graduate Office and must fulfill 7.5 credits in these courses each semester for four consecutive semesters (excluding spring-summer). All course work completed to satisfy the following degree requirements must be done in accordance with the regulations of the Graduate School (p. 24), the College of Liberal Arts and Sciences (p. 234), and the School of Social Work (p. 371).

### Coursework:

Student who have not attained the MSW degree are required to obtain this degree prior to graduating with a SWAN PhD. See the MSW Graduate Bulletin entry for details. Students are required to meet with their MSW adviser to develop an MSW plan of work that meets MSW program requirements. With the approval of the SWAN committee and the MSW coordinator, a limited number of SWAN courses may be counted towards MSW requirements.

**The following courses, or their equivalents, must be completed by ALL students:**

Code	Title	Credits
<b>Social Work - Research/Theory</b>		
SW 9100	Social Statistics and Data Analysis	3
SW 9210	Theories for Practice and Research with Individuals	3
SW 9220	Theories for Practice and Research with Groups and Families	3
SW 9230	Theories for Practice and Research with Communities and Organizations	3
SW 9300	Applied Regression Analysis and Generalized Linear Models	3
SW 9410	Quantitative Research Methods in Social Work	3
<b>Anthropology - Research/Theory</b>		
ANT 5060	Urban Anthropology	3
ANT 5140	Biology and Culture	3
ANT 5320	Language and Societies	3
ANT 5700	Applied Anthropology	3
ANT 7010	Proseminar in Anthropology II	3
ANT 7200	Qualitative Modes of Inquiry and Methods	4
ANT 7780	Conceptualizing the Dissertation	3
Two ANT electives in the student's research area		
<b>SWAN - Theory</b>		
SW 9697	Integrative Seminar in Social Work and Anthropology	3

**Qualifying Exams:** The SWAN steering committee will design and administer the SWAN qualifying examinations so that students can demonstrate the breadth, depth and mastery of their theoretical and empirical knowledge related to social work and anthropology theory, research methods and data analysis approaches as well as their substantive domain of knowledge. Students will demonstrate this knowledge through a written examination consisting of four sections:

1. statistics,
2. culture area,
3. research methods, and
4. a substantive paper demonstrating students' application of social science theory and SWAN knowledge to their intended research domain.

The statistics exam will be an in-school, open book exam developed by faculty teaching the required statistics courses. For the take home theory, topic area and substantive paper components, students will, in consultation with their academic advisers, select a three-person examination committee consisting of social work and anthropology faculty. These examination committee members will meet with students to develop reading lists and questions that students will then address in written take-home exams.

Students who fail one or more sections of the qualifying examination will be expected to retake only those sections that they failed. Students who fail one or more sections of the examination for a second time will be dismissed from the program.

**Foreign Language Requirement:** Students doing SWAN research fieldwork in non-English speaking settings will be expected to have 3 semesters of a foreign language or demonstrate fluency in their field language. These students need to take classes to complete the Anthropology Foreign Language requirement (3 semesters of the same foreign language at the

undergraduate level; language credits do not count towards the 90 credits needed for a Ph.D.).

1. a grade of 'C' or better in one and one-half years of work in the language offered to meet the requirement (three semesters or five quarters of coursework at any accredited college or university);
2. satisfactory performance on a standardized (Educational Testing Services) examination; or
3. certification of competence to carry out research in the relevant language by a member of the graduate faculty of Wayne State or an equivalent university. The nature of the tools of research and requirements for satisfactory proficiency will be determined by each student's doctoral committee. Additionally mandated tools of research may include additional statistics, mathematics, computer science and/or a field language.

**Additional Information:** A more detailed discussion of this doctoral program is available on the SWAN (<http://clas.wayne.edu/swan/>) website. Students should also consult the Graduate School's general requirements for doctoral degrees (p.       ).

# Museum Practice (Graduate Certificate)

The Graduate Certificate in Museum Practice is broadly designed to provide participants with critical knowledge and essential skills relating to different facets of museum operations. The certificate program unites history, theory, and practical learning in a curriculum that lays the groundwork for professional careers in museums and other cultural and heritage institutions. The program is available to students interested in complementing their discipline-based work in master's or doctoral programs across the University, as well as emerging museum professionals and others who wish to pursue it as a free-standing credential.

Admission to this program is contingent on admission to the Graduate School (p. 21). Applicants are required to submit a resumé and a personal statement. To be considered for regular admission, applicants holding either a bachelor's or a graduate degree must have earned at least a 3.0 GPA in their undergraduate or graduate program; if currently enrolled in a graduate program, applicant must similarly have at least a 3.0 GPA.

The Graduate Certificate in Museum Practice requires a minimum of 12 credits. Students must complete two required courses, ANT 5600 Museum Studies and ANT 7422 Museum Practicum, and two electives from a list of options in both Anthropology and allied fields, one of which must be at the 7000-level. The electives are grouped by five different areas of museum practice: Object Research and Curation, Collections Management, Exhibit Design, Museum Development, and Museum Education.

All course work must be completed within three years and in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234). No transfer credit will accepted for the graduate certificate program.

Code	Title	Credits
Core		
ANT 5600	Museum Studies	
ANT 7422	Museum Practicum	
Electives		
Object Research and Curation		
ANT 6570	Archaeological Laboratory Analysis	
ANT 7625	Material Culture and the Social Meaning of Things	
Collections Management		
HIS 6780	Introduction to Records and Information Management	
INF 7710	Archival Administration	
INF 7750	Introduction to Archival and Library Conservation	
INF 7885	Cultural Heritage Institutions: Management and Leadership	
Exhibit Design		
LDT 7111	Design Studio I	
LDT 7180	Message Design for Learning	
COM 7200	Visual Communication	
THR 5422	Introduction to Scene Painting	
THR 5315	Entertainment Design - Scenery I	
THR 5331	Entertainment Design - Lighting I	
Museum Grant-writing/Development		
PS 6720	Marketing, Development, and Grant Writing for Nonprofit Organizations	
PS 7700	Foundations of Nonprofit Management	

INF 7885 Cultural Heritage Institutions: Management and Leadership

#### Museum Education

TED 5350 Topics in Racial Justice in Education

TED 6370 Equity and Inclusion in Diverse Urban Education Settings

LDT 7111 Design Studio I

LDT 7180 Message Design for Learning

## Biological Sciences

Office: 1360 Biological Sciences; 313-577-2873

Chairperson: Markus Friedrich

<https://clas.wayne.edu/biology> (<https://clas.wayne.edu/biology/>)

- Biological Sciences (M.A.) (p. 241)
- Biological Sciences (M.S.) (p. 241)
- Molecular Biotechnology (M.S.) (p. 242)
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- Biological Sciences and Urban Sustainability (Ph.D. Dual-Title) (p. 243)

## Biological Sciences (M.A.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants are expected to have attained a level of scholarship in the baccalaureate program equal to a grade point average of 3.0 or better, including adequate preparation in biological sciences and supporting courses in chemistry, physics and mathematics. Normally, the entering student will be expected to have fulfilled the equivalent of the requirements for the Bachelor of Arts (or Bachelor of Science) degree at Wayne State University and to satisfy any deficiencies by course work before becoming a candidate for the advanced degree.

### Program Requirements

The Department offers the Master of Arts degree under the *Plan C* option requiring thirty-two credits of coursework. Course requirements include the following:

**Plan C:** *Thirty-two credits in course work are required, with a minimum of seven graduate level courses completed in the Department of Biological Sciences.* Cognate credits may be taken in other College of Liberal Arts and Sciences departments, the College of Education, or the School of Medicine with approval from the Departmental Graduate Officer. All students must meet with the Departmental Graduate Officer, Dr. Edward Golenberg, once each semester for approval of course selections.

Students must elect courses according to Departmental requirements (<http://clas.wayne.edu/Biology/UndergraduatePrograms/>).

**Candidacy:** Applicants become degree candidates after completing twelve credit hours of course work and filing a Plan of Work which must be approved and signed by the Departmental Graduate Officer.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Biological Sciences (M.S.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants are expected to have attained a level of scholarship in the baccalaureate program equal to a grade point average of 3.0 or better, including adequate preparation in biological sciences and supporting courses in chemistry, physics and mathematics. Normally, the entering student will be expected to have fulfilled the equivalent of the requirements for the Bachelor of Science degree at Wayne State University and to satisfy any deficiencies by course work before becoming a candidate for the advanced degree. The general portion of the Graduate Record Examination (GRE) is required for



admission to the Master of Science program. Admission is granted for the Fall Semester only.

## Program Requirements

The Department offers the Master of Science degree under the *Plan A* option.

Requirements include the following:

**Plan A:** *Twenty-three credits in course work, plus a thesis (eight credits) based on completion of a research program.*

Under *Plan A*, the eight credits of thesis work must be in original laboratory or field research under the direction of the student's major advisor. At least twenty-four of the total credits must be from the Department of Biological Sciences. A final oral examination is required, based on the candidate's course work and research.

Students must complete one semester of two laboratory rotations before choosing an advisor. Students must elect courses according to departmental requirements, including a core curriculum and electives determined by the student's graduate advisor with review and approval by the Graduate Committee Chairperson and the Department Graduate Officer, Dr. Edward Golenberg.

**Candidacy:** Applicants become degree candidates after completing twelve credit hours of course work and filing a Plan of Work which must be approved and signed by the Departmental Graduate Officer.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Molecular Biotechnology (M.S.)

The Molecular Biotechnology Program is a career-oriented program specifically designed to educate and train technically-oriented people in both the theory and practice of modern biotechnology. The program's main emphasis is on the application of these skills through integration of classroom, laboratory, and research experiences.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants are expected to have attained a level of scholarship in the baccalaureate program equal to a grade point average of 3.0 or better, including adequate preparation in biological sciences and supporting courses in chemistry, physics and mathematics. The general portion of the Graduate Record Examination (GRE) is required. An introductory genetics course and a microbiology course passed with grades of 'B' or better are required, and completion of an introductory biochemistry course is strongly recommended. Deficiencies in course work must be completed before beginning the program. Students may enter in the Fall semester only.

## Program Requirements

The M.S. in Molecular Biotechnology requires thirty-eight credits. Coursework will be completed in accordance with the schedule set by the Program Director, Dr. Weilong Hao. Students must consult with Dr. Hao, each semester prior to registration. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Candidacy:** Applicants become degree candidates after completing twelve credit hours of course work and filing a Plan of Work which must be approved and signed by Dr. Hao.

## Proposed Plan of Work

First Year		
Fall Semester		Credits
BIO 7520	Nucleic Acid Laboratory	2
BIO 6540	Principles of Genetic Analysis	1
BIO 6510	Molecular Interactions	1
BIO 9996	Lab Rotation	2
BIO 6700	Responsible Conduct of Research	1
Credits		7
Winter Semester		
BIO 7530	Proteins Laboratory	2
BIO 7560	Light Microscopy and Imaging	2
BIO 6530	Protein Structure and Dynamics	1
BIO 6520	Gene Expression Manipulation Systems	1
BIO 9996	Lab Rotation	2
BIO 7300	Communication of Research	2
Credits		10
Spring/Summer Semester		
BIO 8996	Research in Molecular Biotechnology	2
Credits		2
Second Year		
Fall Semester		
Elective (6000 or 7000-level)		3
BIO 8995	Graduate Seminar in Biology	2
BIO 8996	Research in Molecular Biotechnology	3
Credits		8
Winter Semester		
Elective (6000 or 7000-level)		3
BIO 8996	Research in Molecular Biotechnology	3
Credits		6
Spring/Summer Semester		
BIO 8996	Research in Molecular Biotechnology	2
Master's Essay		3
Credits		5
Total Credits		38

## Biological Sciences (Ph.D.)

## Admission Requirements

In addition to the requirements of the Graduate School (p. 21) the applicant should have completed a bachelor's or master's degree with a major in a biological or other science. Applicants who have completed degrees in other disciplines will be considered on an individual basis.

Applicants must submit scores for the general portion of the Graduate Record Exam (GRE). The approval of the Department of Biological Sciences Graduate Admissions Committee is required for admission of applicants. Three letters of reference must be submitted, along with a statement of the Candidate's goals and career objectives. Admission is granted for the Fall Semester only.

## Program Requirements

The Doctor of Philosophy degree requires ninety credits beyond the baccalaureate degree. Sixty credits must include the following:

Code	Title	Credits
Select at least twelve credits in Biological Sciences from a core curriculum		
Select no more than thirty-two credits in BIO 7996, Research Problems		
BIO 8995	Graduate Seminar in Biology (minimum 4 credits)	2
BIO 9996	Lab Rotation (minimum 2 credits)	2

Select thirty credits in course work at the 7000-level or higher, exclusive of doctoral dissertation research. Six of those credits must be in courses exclusive of BIO 7996, BIO 8995, and BIO 8999.

The remaining thirty credits must be earned as dissertation credit, taken in consecutive academic year semesters.

Code	Title	Credits
BIO 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
BIO 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
BIO 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
BIO 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Qualifying examinations** are administered in two parts. The first part is a written test which is taken during one of three testing periods, July at the end of the first two semesters, November in the second year, or April in the second year. A list of examination topics will be generated by the student’s dissertation advisory committee at least two months before the scheduled exam.

Students who pass the written qualifying examination take the oral examination within one year of the written test. Students are required to complete a written prospectus of their dissertation research, in the form of a grant proposal. The oral examination will include, but not be limited to, a defense of the prospectus. The examiners will be members of the student’s dissertation advisory committee. The oral examination is graded on a pass/fail basis.

**Candidacy** status is reached after the Plan of Work has been approved, the written and oral portions of the qualifying examination have been passed, approximately fifty credits have been completed, and the student’s dissertation advisory committee has been named.

**Teaching/Research Requirement:** Every doctoral student is required to teach at least two semesters or have equivalent teaching experience.

Continuance in the doctoral program depends upon satisfactory progress as determined by the student’s Dissertation Committee with the Departmental Chairperson as an *ex officio* member.

## Biological Sciences and Urban Sustainability (Ph.D. Dual-Title)

Students admitted to the Ph.D. program in Biology can apply to earn a Ph.D. in Biology with a dual-title in Urban Sustainability. This dual title degree is designed to prepare professionals to solve challenging urban problems that require working across disciplines. Students enrolled in this dual-title program take courses in topics and develop specific skills relating to urban sustainability. Students in Biology will also conduct an internship or science exchange in Urban Sustainability, help develop and participate in colloquia and seminars, perform community service, and write funding proposals. The dual-title coursework follows competencies outlined by the Transformative Research in Urban Sustainability Training program.

Applicants must meet the admissions standards of the Graduate School (p. 21) and the Department of Biological Sciences and be first offered admission to the Biology doctoral program.

Students are required to take six core courses plus 12 elective credits of Urban Sustainability coursework. A minimum of 7 of the 12 elective credits must be from coursework outside of the student’s home department.

Code	Title	Credits
<b>Core Courses</b>		
ANT 5060	Urban Anthropology	
BIO 7310	Sustainability of Urban Environmental Systems	
CE 5410	Energy, Emissions, Environment (E3) Design	
COM 7170	Health and Risk Communication	
GS 0900	Essential Research Practices: Responsible Conduct of Research	
UP 6470	Environmental Planning	
<b>Elective Courses</b>		
ANT 5565	Urban Archaeology	
ANT 6570	Archaeological Laboratory Analysis	
BIO 5040	Biometry	
BIO 5180	Field Investigations in Biological Sciences	
BIO 6420	Ecotoxicology and Risk Assessment	
BIO 7011/ PHC 7410	Principles of Toxicology	
BIO 7540	Landscape Ecology	
CE 6270	Sustainability Assessment and Management	
CE/PSC 6910	Pharmaceutical Waste: Environmental Impact and Management	
CE 7280	Applied Environmental Microbiology	
CE 7995	Special Topics in Civil Engineering II <sup>1</sup>	
COM 7160	Crisis Communication	
ECO 6200	Advanced Regulation and Regulated Industries	
ECO 6520	Advanced State and Local Public Finance	
ECO 6800	Advanced Urban and Regional Economics	
FPH 7420	Principles of Environmental Health	
ESG 5000	Geological Site Assessment	
ESG 5510	Environmental Fate and Transport of Pollutants	
ESG 5610	Special Topics in Environmental Science and Geology	
LEX 7231	Environmental Law	
UP 5110	Urban Planning Process	
UP 5430	Cities and Food	
UP 6120	Planning Studies and Methods	
UP 6260	Land Use Policy and Planning	
UP 6700	Geographic Information Systems	

<sup>1</sup> In order to satisfy the elective requirement, the topic area must be relevant to the program. Students should consult with their advisor for details.

# Chemistry

Office: 169 Chemistry Building; 313-577-7784  
Chairperson: Matthew J. Allen  
Associate Chairperson: Jeremy Kodanko  
Academic Services Officers: Erin Bachert, Jackie Kennedy, Melissa Rochon  
<https://clas.wayne.edu/chemistry> (<https://clas.wayne.edu/chemistry/>)

## General Requirements for Graduate Study in Chemistry

Every student entering the graduate program in chemistry will be required to take a series of entrance (proficiency) examinations covering the major disciplines of chemistry. These examinations, which cover standard undergraduate-level material, will be administered on announced dates in August.

A final oral examination is required of all graduate degree candidates.

- Chemistry (M.A.) (p. 244)
- Chemistry (M.S.) (p. 244)
- Chemistry (Ph.D.) (p. 245)

## Chemistry (M.A.)

This degree is designed for those who wish advanced training in chemistry but intend to pursue careers in cognate fields, such as education or business.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

Admission may be granted to applicants who have completed one year of college physics, mathematics through calculus, and the equivalent of undergraduate semester credits in chemistry as follows: general chemistry (eight credits), organic chemistry (eight credits), physical chemistry (six credits), quantitative analysis (four credits), and advanced chemistry (three credits). Applicants specializing in biochemistry may substitute advanced biology for advanced chemistry.

A minimum undergraduate grade point average of 2.75 in chemistry and cognate science is required. Students who do not meet the requirements may petition the departmental committee on graduate study for qualified admission. Admissions under this program may include special requirements specified on the basis of the student's previous experience and training.

## Program Requirements

This degree is offered only as a Plan C master's program. (Chemistry courses below the 6000 level may not be applied toward this degree.) A total of thirty credits in course work which must include:

Code	Title	Credits
CHM 8850	Frontiers in Chemistry	1
Select two or three credits in graduate seminar:		2-3
CHM 8800	Seminar in Analytical Chemistry	
CHM 8810	Seminar in Organic Chemistry	
CHM 8820	Seminar in Inorganic Chemistry	
CHM 8830	Seminar in Physical Chemistry	
CHM 8840	Seminar in Biochemistry	
CHM 6740	Laboratory Safety	1

Select at least eighteen credits in chemistry courses open to graduate chemistry students (excluding research, seminar, CHM 6740 and CHM 8850) of which at least nine credits must be at the 7000 level

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Candidacy** must be established by the time twelve credits have been earned. The applicant must file a copy of the Plan of Work with the Graduate Officer.

## Chemistry (M.S.)

This is a professional degree for those planning to enter the chemical profession.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

We do not admit students directly into our master of science program. Students wishing to pursue research-based careers should apply directly to our Ph.D. program (<https://clas.wayne.edu/chemistry/grad/phd/>) or the Master of Arts in Chemistry (<https://clas.wayne.edu/chemistry/grad/ma/>) (for cognate fields, such as medicine, education or business).

## Program Requirements

This degree is offered only as a Plan A (thesis) master's program. (Chemistry courses below the 6000 level may not be applied toward this degree.)

Code	Title	Credits
CHM 8850	Frontiers in Chemistry	1
Select two to three credits in seminar:		2-3
CHM 8800	Seminar in Analytical Chemistry	
CHM 8810	Seminar in Organic Chemistry	
CHM 8820	Seminar in Inorganic Chemistry	
CHM 8830	Seminar in Physical Chemistry	
CHM 8840	Seminar in Biochemistry	
CHM 6740	Laboratory Safety	1
Select at least twelve credits in chemistry courses open to graduate chemistry students (excluding research, seminar, CHM 6740, and CHM 8850) of which at least nine credits must be at the 7000 level		12
Select six credits in chemistry and/or cognate courses		6
CHM 8999	Master's Thesis Research and Direction	8
M.S. students are required to complete an original research project, write a M.S. thesis and defend the thesis with a committee consisting of their research advisor and two other committee members from the Department of Chemistry		

**Total Credits** 30-31

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Candidacy** must be established by the time twelve credits have been earned. The applicant must file a copy of the Plan of Work with the Graduate Officer.

# Chemistry (Ph.D.)

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). All applications for admission to the doctoral program in chemistry and all adjustments in the program subsequent to admission must have the approval of the Graduate Officer of the Department of Chemistry.

A minimum undergraduate grade point average of 3.0 in chemistry and cognate science is required except by special permission of the Departmental Committee on Graduate Study. An applicant having a master's degree from another institution must show a grade point average of at least 3.0 ('B').

Transfer from the Master's Program to the Ph.D. Program: In order to transfer to the Ph.D. program, a student must accumulate a minimum of nine credits in chemistry course work numbered 6040-8690 with a grade point average of at least 3.25. An applicant having a lower average must earn the master's degree with a superior academic record before acceptance as a doctoral applicant.

## Program Requirements

Questions regarding requirements should be addressed to the Academic Services Officer. The Doctor of Philosophy degree requires ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credit, and the remainder of which must include the following:

1. A minimum of six courses (eighteen credits) in graduate course work of which at least nine credits must be in chemistry courses at the 7000 level or above; not less than six credits shall be from outside the major division of specialization. A student who does not pass any proficiency examinations upon entrance to the program will be required to pass an additional graduate course, for a total of seven courses (twenty-one credits). Additional courses beyond the required six or seven, may be specified by the student's Ph.D. advisor or committee to address deficiencies or to develop expertise in one or more specific research areas.
2. *Credit by Examination:* Well-prepared students may receive up to nine credits by passing the final examinations in 6000- or 7000-level courses. These may be in either the major or minor fields.
3. Four credits of graduate seminar:

Code	Title	Credits
CHM 8800	Seminar in Analytical Chemistry	1
CHM 8810	Seminar in Organic Chemistry	1
CHM 8820	Seminar in Inorganic Chemistry	1
CHM 8830	Seminar in Physical Chemistry	1
CHM 8840	Seminar in Biochemistry	1

4. One credit in CHM 8850 Frontiers in Chemistry.
5. One credit in CHM 6740 Laboratory Safety.
6. Zero credit in GS 0900 Essential Research Practices: Responsible Conduct of Research.
7. Two credits in CHM 7770 Proposals in Chemical Research.
8. Thirty credits in Ph.D. research involving independent research under the direction of a faculty member in the Department. The thirty credit dissertation registration requirement is fulfilled by registering for the courses:

Code	Title	Credits
CHM 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5

CHM 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
CHM 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
CHM 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5

(Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

9. Submission of a satisfactory research dissertation.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Candidacy:** In order to become a candidate for the Ph.D. degree, an applicant must successfully complete both a written and oral qualifying examination. The written examination consists of an independent research proposal. The oral examination includes the major field and covers minor and cognate fields as well. Any additional requirements set by the Graduate School or the department must be completed. Copies of such requirements may be obtained from the Chairperson of the Departmental Committee on Graduate Study.

# Classical and Modern Languages, Literatures, and Cultures

Office: 485 Manoogian Hall; 313-577-3002  
Chairperson: Vanessa DeGifis  
Academic Services Officer: Terrie Pickering  
<https://clas.wayne.edu/languages> (<https://clas.wayne.edu/languages/>)

- Classics (M.A.) (p. 246)
- German (M.A.) (p. 247)
- Language Learning (M.A.) (p. 248)
- Near Eastern Languages (M.A.) (p. 248)
- Romance Languages (M.A.) (p. 249)
- Modern Languages (Ph.D.) (p. 251)

## Classics (M.A.) Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Additionally, the applicant must present an undergraduate major in Latin, Greek, or Classics, or receive the consent of the graduate advisor for graduate work. Evidence of having passed the Graduate Record Exam is required.

## Program Requirements

The master’s degree in Classics is offered under the following options:

**Plan A:** Twenty-four credits in course work, plus an eight-credit thesis.

**Plan B:** Twenty-eight credits in course work, plus a four-credit essay.

**Plan C:** Thirty-two credits in course work.

**Candidacy** must be established by the time twelve credits have been earned.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the College of Liberal Arts and Sciences (<http://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/academic-regulations/>).

Students who plan to pursue a Ph.D. in Classics or a related field should follow Plan A or B in order to demonstrate their ability to conduct scholarly research.

## Latin (M.A. Concentration)

Under *Plan A*, course work must include at least twenty-four credits in Latin, exclusive of LAT 5000 and LAT 8999 and at least eight of these twenty-four credits must be in courses numbered 7000 or higher. A final oral examination is required.

Under *Plan B*, course work must include at least twenty-eight credits in Latin, exclusive of LAT 5000 and LAT 7999 and at least eight of these twenty-eight credits must be in courses numbered 7000 or higher. A maximum of four credits in cognate or related fields may be applied under this Plan. A final oral examination is required.

Under *Plan C*, course work must include at least thirty-two credits in Latin, exclusive of LAT 5000 and at least eight of these thirty-two credits must be in courses numbered 7000 or higher. A maximum of four credits in cognate or related fields may be applied under this Plan. A final written and/or oral examination is required.

## Greek (Ancient) and Latin (M.A. Concentration)

Under *Plan A*, a minimum of twelve credits in course work is required in each language (Ancient Greek and Latin) exclusive of GKA 5000, GKA 8999, LAT 5000, or LAT 8999. A minimum of two courses (exclusive of thesis courses) in one language must be in courses numbered 7000 or higher. A final oral examination is required.

Under *Plan B*, a minimum of twelve credits in course work is required in each language (Ancient Greek and Latin) exclusive of GKA 5000, GKA 7999, LAT 5000, or LAT 7999. A minimum of two courses (exclusive of the essay course) in one language must be in courses numbered 7000 or higher. The remaining four credits may be in Latin or Ancient Greek; alternatively, a maximum of four credits in cognate or related fields may be applied. A final oral examination is required.

Under *Plan C*, a minimum of sixteen credits in course work must be taken in one language, and a minimum of twelve credits in the other, exclusive of GKA 5000 or LAT 5000. To complete the thirty-two credit requirement, four credits in either language may be added; alternatively, a maximum of four credits in cognate or related fields may be applied. A final written and/or oral examination is required.

## Ancient Studies (M.A. Concentration)

A minimum of twenty credits is required in either Ancient Greek or Latin, exclusive of GKA 5000 or LAT 5000, plus six additional credits in Classics (CLA) courses at the 5000 level or above and at least six additional credits in courses selected from the following list. At least two courses elected in this plan must be in courses numbered 7000 or above. A final written and/or oral examination is required.

Code	Title	Credits
ANT 5270	Concepts and Techniques in Archaeology	3
AH 5210	Hellenistic Art	3
AH 5260	Classical Greek Art	3
AH 5270	Roman Painting and Sculpture	3
AH 5310	The Ancient City of Athens	3
CLA 5050	Cleopatra	3
CLA 5150	Athens and the Ancient Greek World	3-4
CLA 5200	Special Studies	1-4
CLA 5350	Plutarch’s Lives of the Noble Greeks and Romans	3
CLA/GKM 5530	The World of Early Christianity	3
CLA/GKM 5590	Byzantine Civilization	3
CLA 5700	The Golden Age of Rome	3-4
CLA/GKM 5720	Greek Identity from Antiquity to Modernity	3
CLA 5800	Survey of Greek Literature	3-4
CLA 5825	Survey of Latin Literature	3-4
CLA 6260	Further Studies in Mythology	3
HIS 5330	History of Ancient Greece	3
or HIS 7330	Readings in the History of Ancient Greece	
HIS 5335	History of the Hellenistic Age	3
HIS 5340	History of Ancient Rome	3
or HIS 7340	Readings in the History of Ancient Rome	
HIS 5360	The Early Middle Ages: 300-1000	3
or HIS 7360	Readings in the Early Middle Ages: 300-1000	
PHI 5400	The Presocratics and Sophists	4
PHI 5410	Plato	4
PHI 5420	Aristotle	4



# German (M.A.)

Admission to this program is contingent upon admission to the Graduate School (p. 21).

The master’s degree in German is offered by this department under the following options:

**Plan A:** Students select 24 credits from the following German courses. Alternatively, in consultation with the MA German Advisor, students may take up to nine credits in related fields. At least six credits of German courses need to be at the 7000-level. Students will enroll in GER 8999 for a total of 6 credits. In consultation with the MA Advisor, the number of credits for GER 8999 may be extended up to 8. Students will also take an oral exam in their final semester.

Code	Title	Credits
Coursework in German		24
GER 5000	German Practicum	
GER 5100	Advanced Communication in Oral and Written Discourse	
GER 5210	German Translation Studies	
GER 5390	Holocaust Studies	
GER 5400	Cultural Studies and Criticism	
GER 5600	Research in German Studies	
GER 5770	Modernism	
GER 5780	Texts and Contexts Since 1945	
GER 5790	Topics in German Studies	
GER 5800	Literature and Cultures of Minorities	
GER 5999	Internship in German Studies	
GER 7010	Introduction to Literary Theory	
GER 7390	Holocaust Studies	
GER 7400	Cultural Studies and Criticism	
GER 7770	Modernism	
GER 7780	Texts and Contexts Since 1945	
GER 7790	Topics in German Studies	
GER 7800	Literatures and Cultures of Minorities	
GER 8999	Master’s Thesis Research and Direction	6
Total Credits		30

**Plan B:** Students select 27 credits from the following German courses. Alternatively, in consultation with the MA German Advisor, students may take up to nine credits in related fields. Students are required to enroll in GER 7999 for a total of 3 credits. In addition to GER 7999, at least six credits of German courses need to be at the 7000-level. In their final semester, students will complete an oral exam.

Code	Title	Credits
Coursework in German		27
GER 5000	German Practicum	
GER 5100	Advanced Communication in Oral and Written Discourse	
GER 5210	German Translation Studies	
GER 5390	Holocaust Studies	
GER 5400	Cultural Studies and Criticism	
GER 5600	Research in German Studies	
GER 5770	Modernism	
GER 5780	Texts and Contexts Since 1945	
GER 5790	Topics in German Studies	
GER 5800	Literature and Cultures of Minorities	

GER 5999	Internship in German Studies	
GER 7010	Introduction to Literary Theory	
GER 7390	Holocaust Studies	
GER 7400	Cultural Studies and Criticism	
GER 7770	Modernism	
GER 7780	Texts and Contexts Since 1945	
GER 7790	Topics in German Studies	
GER 7800	Literatures and Cultures of Minorities	
GER 7999	Master’s Essay Direction	3
Total Credits		30

**Plan C:** Students will take 30 credits of coursework. They may select all 30 credits from the following German courses. Alternatively, in consultation with the MA German Advisor, students may take up to nine credits in related fields. Student will complete both a written and an oral exam. The written exam may be taken at any time during the course of the Master’s Program. The oral exam will be taken in the final semester.

Code	Title	Credits
Coursework in German		30
GER 5000	German Practicum	3
GER 5100	Advanced Communication in Oral and Written Discourse	3
GER 5210	German Translation Studies	3
GER 5390	Holocaust Studies	3
GER 5400	Cultural Studies and Criticism	3
GER 5600	Research in German Studies	3
GER 5770	Modernism	3
GER 5780	Texts and Contexts Since 1945	3
GER 5790	Topics in German Studies	3
GER 5800	Literature and Cultures of Minorities	3
GER 5999	Internship in German Studies	3
GER 7010	Introduction to Literary Theory	3
GER 7390	Holocaust Studies	3
GER 7400	Cultural Studies and Criticism	3
GER 7770	Modernism	3
GER 7780	Texts and Contexts Since 1945	3
GER 7790	Topics in German Studies	3
GER 7800	Literatures and Cultures of Minorities	3

Students planning a teaching career on the college level or intending to continue to the doctoral degree should elect either Plan A or Plan B. Plan C, Language and Culture, is intended primarily for those interested in teaching on the elementary and secondary school levels, or for those with a more general interest in German language and culture.

All students studying for the M.A. in German who have graduate teaching assistantships are required to complete LGL 7850.

Under all Plans, the Graduate School requires a minimum of six credits at the 7000 level or above.

**Academic Scholarship:** All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Master’s Option in Germany:** Students accepted into the German graduate program have the opportunity to earn graduate credit towards a Master of Arts in German while spending two semesters studying at the University of Munich. The opportunity is made possible by the

cooperation of the Junior Year in Munich Program, which facilitates the student's matriculation, registration, and housing in Munich.

All students must first be admitted to the German graduate program before they will be considered eligible to participate in this option. Students already enrolled are eligible to participate upon successful completion of sixteen graduate credits within the department with a grade of 'B' or better, approval of the M.A. Plan of Work, and/or the approval of the graduate advisor. Students who wish to spend their first year of graduate study in Munich must complete their studies on the WSU campus in order to receive the M.A. degree. While in Germany the student will complete a minimum of eight credits per semester. WSU credit will be granted only for those classes approved in advance by the graduate advisor and for which the student has earned *benotete Scheine* (graded certificate).

For further details and requirements, see the German M.A. advisor.

## Language Learning (M.A.)

*An admissions moratorium is in effect for this program.*

This program is targeted at in-service elementary, secondary, and college-level foreign language teachers interested in ongoing professional development. Students should be advised that it does not provide provisional state licensure (teacher certification), and does not include a practice teaching component. The program can be completed with concentrations in: Arabic, Classics, French, German, Italian, and Spanish.

Admission to this program is contingent upon:

1. admission to the Graduate School (p. 21), and
2. approval of the Master of Arts in Language Learning (MALL) Advisory Committee (based on the applicant's academic record, target language proficiency, statement of purpose, and three letters of recommendation).

The Master of Arts in Language Learning degree is offered under the Plan B (essay) option only. It requires a minimum of thirty-three credits in course work, plus a three-credit essay. Course work is divided into three core areas.

The Graduate School requires that a minimum of six credits be completed at the 7000-level or above. The three-credit essay will be written in conjunction with materials learned in the three cores under the direction of a MALL faculty member.

**Academic Scholarship:** Grades of 'B-minus' or lower in any course in the language and culture core or in the methodology core will represent unacceptable work. Students receiving such grades must repeat the course in order to have it count toward the degree. Students must maintain a 3.0 g.p.a. overall. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Candidacy** must be established by the time twelve credits have been earned.

## Near Eastern Languages (M.A.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Additionally, applicants must supply the program with a letter of intent, a 5-7 page sample of academic writing in English, and three confidential letters of recommendation. GRE scores are encouraged, but not required. International applicants must satisfy

English proficiency requirements as established by the Graduate School, which may require submission of TOEFL scores.

Admission Requirements consist of: Minimum undergraduate g.p.a. of 2.75 ('C+'); and a minimum of two years of prior study in Arabic language, with a minimum g.p.a. in Arabic language courses of 3.5 ('B'+). Prior coursework in Islamic and/or Near Eastern Studies is preferred. Candidates for the master's degree with concentration in either Hebrew or Arabic must have an adequate knowledge of at least one Semitic language and some knowledge of the culture of the Near East.

## Program Requirements

The master's degree is offered by this department under the following options:

**Plan A:** Thirty credits including a six-credit thesis; oral and written exit exams in the target language.

**Plan B:** Thirty credits including a three-credit essay; oral and written exit exams in the target language.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Candidacy** must be established by the time twelve credits have been earned. The applicant's Plan of Work must have the approval of the academic program advisor.

**Under Plan A:** Students are required to complete a minimum of 30 credits, including:

Code	Title	Credits
<b>Coursework with primary texts in Arabic</b>		
Select one of the following courses:		3
ARB 5010	Medieval Arabic Texts	
ARB 5020	Media Arabic	
ARB 5140	Modern Arabic Literature in Arabic and English	
<b>Electives in Arabic language studies</b>		
Select three courses from the following (or additional courses from above):		9
ARB 5100	Teaching of Arabic as a Foreign/Second Language (TAFL)	
ARB 5210	Arabic Sociolinguistics	
ARB 5230	Structure of Arabic	
ARB 5240	Quranic Arabic	
ARB 5700	Arabic for Healthcare Professions	
ARB 6700	History of Arabic	
<b>Electives in Near Eastern studies</b>		
Select two of the following courses:		6
NE 5110	History and Development of Islamic Political Thought	
NE 5220	Muslim Personal Law	
NE 5710	Islam and the Challenge of Modernity	
NE 6500	Religion and Society	
<b>Coursework at the 7000 level</b>		
NE 7100	Islam and the West	3
NE 7300	Qur'an: History and Interpretation	3
<b>Master's Thesis</b>		
NE 8999	Master's Thesis Research and Direction	6
<b>Total Credits</b>		<b>30</b>

\* Other electives can be chosen with the consent of an advisor.

**Under Plan B:** Students are required to complete a minimum of 30 credits, including:

Code	Title	Credits
<b>Coursework with primary texts in Arabic</b>		
Select one of the following courses:		3
ARB 5010	Medieval Arabic Texts	
ARB 5020	Media Arabic	
ARB 5140	Modern Arabic Literature in Arabic and English	
<b>Electives in Arabic language studies</b>		
Select four courses from the following (or additional courses from above):		12
ARB 5100	Teaching of Arabic as a Foreign/Second Language (TAFL)	
ARB 5210	Arabic Sociolinguistics	
ARB 5230	Structure of Arabic	
ARB 5240	Quranic Arabic	
ARB 5700	Arabic for Healthcare Professions	
ARB 6700	History of Arabic	
<b>Electives in Near Eastern studies</b>		
Select two of the following courses:		6
NE 5110	History and Development of Islamic Political Thought	
NE 5220	Muslim Personal Law	
NE 5710	Islam and the Challenge of Modernity	
NE 6500	Religion and Society	
<b>Coursework at the 7000 level</b>		
NE 7100	Islam and the West	3
NE 7300	Qur'an: History and Interpretation	3
<b>Master's Essay</b>		
NE 7999	Master's Essay Direction	3
<b>Total Credits</b>		<b>30</b>

\* Other electives can be chosen with the consent of an advisor.

In addition to Arabic language (ARB) courses, students elect courses in Near Eastern studies (NE) and Hebrew (HEB), and may elect up to six credits in cognate courses in other related topics in the history, philosophy, anthropology, linguistics, literature, sociology and politics of the Middle East, with consent of advisor. At least two courses must be completed at the 7000+ level. Students are expected to write an essay or a thesis wherein they must show ability in using Arabic sources and doing research as well as demonstrate proficiency in the target language. A final oral and written examination will be required to test the ability of the student in the target language.

## Romance Languages (M.A.)

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, the Graduate Record Examination is strongly recommended, and three letters of recommendation are required of all applicants to the M.A. and Ph.D. programs.

Students envisaging a teaching career on the college level or intending to continue to the doctoral degree may elect either Plans A, B, or C –

Literature. Plan C – Language and Culture, is available only in French and Spanish.

**Academic Scholarship:** All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## French (M.A. Concentration)

**Under Plan A:** Candidates are required to take:

Code	Title	Credits
FRE 6200	Renaissance to Revolution	3
FRE 6300	Modernity, Postmodernity, and Extreme Contemporain	3
FRE 6620	Topics in Sociocultural Analysis	3
FRE 8410	Topics in French and Francophone Culture	3
FRE 8415	Topics in French and Francophone Literature	3
FRE 8600	Seminar in Early Modern Studies	3
FRE 8610	Seminar in Modernity, Postmodernity, and Extreme Contemporain	3
FRE 8999	Master's Thesis Research and Direction	6
Electives (FRE 5100 cannot count for Plan A)		3
<b>Total Credits</b>		<b>30</b>

With the consent of the candidate's advisor, up to six credits may be elected in related fields. At least five weeks prior to the time the degree is to be granted, candidates must pass a comprehensive examination based on the French area reading lists for the Master of Arts degree. All students with a graduate teaching assistantship must take LGL 5850: Foreign Language Instruction.

**Under Plan B:** Candidates are required to take:

Code	Title	Credits
FRE 6200	Renaissance to Revolution	3
FRE 6300	Modernity, Postmodernity, and Extreme Contemporain	3
FRE 6620	Topics in Sociocultural Analysis	3
FRE 8410	Topics in French and Francophone Culture	3
FRE 8415	Topics in French and Francophone Literature	3
FRE 8600	Seminar in Early Modern Studies	3
FRE 8610	Seminar in Modernity, Postmodernity, and Extreme Contemporain	3
FRE 7999	Master's Essay Direction	3
Electives (FRE 5100 cannot count for Plan B)		6
<b>Total Credits</b>		<b>30</b>

With the consent of the candidate's advisor, up to six credits may be elected in related fields. At least five weeks prior to the time the degree is to be granted, candidates must pass a comprehensive examination based on the French area reading lists for the Master of Arts degree. All students with a teaching assistantship must take LGL 5850: Foreign Language Instruction.

**Under Plan C:** Candidates are required to take:

Code	Title	Credits
FRE 6200	Renaissance to Revolution	3
FRE 6300	Modernity, Postmodernity, and Extreme Contemporain	3
FRE 6620	Topics in Sociocultural Analysis	3

FRE 8410	Topics in French and Francophone Culture	3
FRE 8415	Topics in French and Francophone Literature	3
FRE 8600	Seminar in Early Modern Studies	3
FRE 8610	Seminar in Modernity, Postmodernity, and Extreme Contemporain	3
Electives		9
<b>Total Credits</b>		<b>30</b>

With the consent of the advisor, up to six credits may be elected in related fields. No essay is required for Plan C. Candidates for the degree must, upon completion of their coursework, take a comprehensive written and oral examination based on the French area reading lists for the Master of Arts Degree. All students with a graduate teaching assistantship must take LGL 5850: Foreign Language Instruction.

## Italian (M.A. Concentration)

**Under Plan A:** Candidates are required to complete 30 credits, including 24 credits in Italian courses and a 6-credit thesis. With the recommendation of the Italian faculty and consent of the graduate advisor, students may elect to take up to 6 credits in related areas.

Code	Title	Credits
<b>Courses in Italian</b>		<b>24</b>
ITA 5150	Italian Cinema	
ITA 5200	Italian Theater Workshop	
ITA 5570	Topics in Italian Studies	
ITA 6400	Languages of Italy	
ITA 6610	Dante's Comedy I: Inferno	
ITA 6620	Dante's Comedy II: Purgatory and Paradise	
ITA 6680	Love, Politics and the Art of Elegance	
ITA 6690	Italian Love Sickness	
ITA 6700	Performing Italy	
ITA 6800	Imagining Italy, Creating Italians	
ITA 6870	Modern Italy in Transition	
ITA 6900	Contemporary Italian Culture	
ITA 7010	Introduction to Literary Theory	
ITA 7996	Research Project	
ITA 8999	Master's Thesis Research and Direction	6
<b>Total Credits</b>		<b>30</b>

At least five weeks prior to the time the degree is to be granted, candidates must pass a comprehensive oral examination based on coursework and the Italian area reading list.

**Under Plan B:** Candidates are required to complete 30 credits, including 27 credits in Italian courses and a 3-credit essay. With the recommendation of the Italian faculty and consent of the graduate advisor, students may elect to take up to 6 credits in related areas.

Code	Title	Credits
<b>Courses in Italian</b>		<b>27</b>
ITA 5150	Italian Cinema	
ITA 5200	Italian Theater Workshop	
ITA 5570	Topics in Italian Studies	
ITA 6400	Languages of Italy	
ITA 6610	Dante's Comedy I: Inferno	
ITA 6620	Dante's Comedy II: Purgatory and Paradise	
ITA 6680	Love, Politics and the Art of Elegance	
ITA 6690	Italian Love Sickness	

ITA 6700	Performing Italy	
ITA 6800	Imagining Italy, Creating Italians	
ITA 6870	Modern Italy in Transition	
ITA 6900	Contemporary Italian Culture	
ITA 7010	Introduction to Literary Theory	
ITA 7996	Research Project	
ITA 7999	Master's Essay Direction	3
<b>Total Credits</b>		<b>30</b>

At least five weeks prior to the time the degree is to be granted, candidates must pass a comprehensive oral examination based on coursework and the Italian area reading list.

## Spanish (M.A. Concentration)

The Spanish M.A. consists of 30 credit hours taken in the areas of a) Spanish Linguistics; b) Early Modern and Modern Spanish Literature; c) Contemporary Spanish Literature; d) Spanish American Literature to 1900; e) Spanish American Literature of the 20th and 21st centuries; f) Language, Translation and Culture. The credits are to be completed according to Plan A, B, or C, as follows:

**Plan A – Coursework plus Thesis:** Plan A requires the student to complete 24 credits in coursework plus a 6-credit thesis (written in Spanish) for a total of 30 credits.

**Plan B – Coursework plus Essay:** Plan B requires the student to complete 27 credits in coursework plus a 3-credit essay (written in Spanish) for a total of 30 credits.

**Plan C – Coursework Only:** Plan C requires the student to complete a minimum of 30 credits of coursework (no thesis or essay).

Code	Title	Credits
Spanish Linguistics		
SPA 5200	Spanish Phonetics	3
SPA 6400	Introduction to Hispanic Linguistics	3
SPA 7510	History of the Spanish Language	3
SPA 8420	Seminar in Hispanic Linguistics	3
Early Modern and Modern Spanish Literature		
SPA 6410	Spanish Medieval Literature: Origins to 1500	3
SPA 6420	Early Modern Spanish Studies	3
SPA 6440	Spanish Literature of the Eighteenth Century	3
SPA 6560	Cervantes	3
SPA 6570	The Comedia	3
SPA 6590	Genres and Topics in Peninsular Spanish Literature	3
SPA 8510	Seminar in the Golden Age	3
Contemporary Spanish Literature		
SPA 6450	Spanish Romanticism	3
SPA 6470	The Spanish Novel of the Twentieth Century	3
SPA 6490	Spanish Poetry of the Nineteenth and Twentieth Centuries	3
SPA 6700	Spanish Literature of the Silver Age: 1900-1936	3
SPA 6710	Unamuno's Existential Fiction	3
SPA 8550	Seminar in Spanish Literature of the Twentieth Century	3
Spanish American Literature to 1900		
SPA 6600	Colonial Latin American Studies	3
SPA 6610	Latin American Novel to 1900	3
SPA 8530	Seminar in Spanish Literature of the Eighteenth and Nineteenth Centuries	3

## Spanish American Literature of the 20th-21st Centuries

SPA 6620	Latin American Novel in the 20th and 21st Centuries	3
SPA 6630	Spanish American Poetry	3
SPA 6690	Genres and Topics in Spanish American Literature	3
SPA 8610	Seminar in Spanish American Narrative	3
Language, Translation, and Culture		
SPA 5300	Advanced Grammar and Stylistics	3
SPA 5400	Introduction to Professional and Literary Translation	3
SPA 5550	Spanish Culture and Its Tradition	3
SPA 5560	Spanish American Cultures and their Traditions	3
SPA 5570	Topics in Hispanic Culture or Language	3

All courses at the 5000 level and above, except 5100, 5600, and 5999, can be taken as part of the coursework for the M.A. in Spanish. Students are expected to take at least 3 credits in each of the areas listed above. Topics courses (5570, 6590, and 6690) and seminars (8420, 8510, 8550, and 8610) can be taken more than once for a maximum of 9 credits each. A minimum of 6 credits must be taken at the 7000 level or above.

In addition, candidates are required to write comprehensive examinations as specified in the *Graduate Handbook for Students and Faculty of the Department of Classical and Modern Languages, Literatures, and Cultures*, based on the Spanish area reading list for the Master of Arts degree. No oral examination is required.

## Modern Languages (Ph.D.)

The Doctor of Philosophy with a major in Modern Languages allows students to combine a major and a minor that best meet their interests and career goals. Students must consult with the Ph.D. advisor to consolidate a coherent plan of work that emphasizes disciplinary knowledge, critical thinking, research skills, and interdisciplinary work. Several options are available:

**Major Concentration:** Doctoral students may concentrate their studies in French, German, or Spanish. Between forty-five to forty-eight graduate credits must be completed in one of these major areas.

**Minor Concentration:** Doctoral students broaden their course of study through the choice of a minor concentration, which requires nine to twelve credits. Minors are available in literary and cultural criticism, in a second language (French, German, Italian, or Spanish), or in another area which will complement work undertaken in the major. The choice of the minor will be determined in consultation with both the graduate adviser and the potential dissertation advisor, if determined, or a subject-matter specialist in the area of the minor.

**Admission Requirements:** Admission to this program is contingent upon admission to the Graduate School (p. 21). The application for admission and transcripts of all previous college work should be filed in the Graduate School at least three months in advance of the time the applicant plans to register. A letter giving information on the applicant's educational background, experience, objectives, oral fluency in the language, or proposed major concentration and other data of interest to an evaluating committee should be sent by the applicant as soon as possible to the Chairperson of the Department of Classical and Modern Languages, Literatures, and Cultures.

**Course Requirements:** The Doctor of Philosophy requires ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credits. A minimum of between forty-five to forty-eight credits on the graduate level in the field of major concentration, and nine to twelve credits in one minor field. The total program must include thirty

credits (excluding dissertation direction) at the 7000 level or above. All students are required to take a 7010 course (Introduction to Literary Theory) and all students with a graduate teaching assistantship must take LGL 5850: Foreign Language Instruction.

**Language Requirements:** The doctoral candidate must pass a Ph.D. reading examination in one language other than those of his/ her major and minor fields. The choice of the language will be determined in consultation with the graduate advisor and subject to the approval of the Graduate Committee.

**Qualifying Examinations:** Within a reasonable time after the completion of all course work, students are required to pass extensive examinations, both written and oral, in the major and minor fields. Candidacy is achieved after passing the qualifying examinations and the dissertation committee is named. Later, after the dissertation has been completed, a final oral presentation and defense of it is required.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).



# Communication Sciences and Disorders

Office: 103 Prentis Building; 313-577-3339

Chairperson: Jinsheng Zhang

Graduate Officer: Derek Daniels

Coordinators of Clinical Programs: Tausha Moore, Mary Kassa

<https://clas.wayne.edu/csd> (<https://clas.wayne.edu/csd/>)

Audiology is the study of the normal and impaired auditory system. Speech-language pathology focuses on impaired speech, language, fluency, and voice function of children and adults. The Doctor of Audiology (Au.D.) and Master of Arts with a major in Speech-Language Pathology degree programs offer students intensive and diverse academic and clinical experiences.

The course of study should be developed as early as possible with the student's major advisor, and candidacy must be established by filing an approved Plan of Work after twelve credits have been earned.

## Academic Scholarship

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Application Requirements

Application requirements for all departmental graduate programs are:

1. a minimum undergraduate grade point average of 3.0
2. completion of the Graduate Record Examination
3. submission of three letters of recommendation
4. submission of a written Statement of Intent
5. submission of official transcripts

International applicants must provide, in addition, official results of the TOEFL, TWE, and SPEAK/TSE. Please access the department's website (<http://www.clas.wayne.edu/csd/>) for additional information. Admission to all programs is contingent upon admission to the Graduate School (p. 21).

## Accreditation

The Master of Arts (M.A.) education program in Speech-Language Pathology and the Doctor of Audiology (Au.D.) education program in Audiology at Wayne State University are accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology of the American Speech-Language-Hearing Association, 2200 Research Blvd., #310, Rockville, MD 20850, Telephone: 800-498-2071 or 301-296-5700.

- Speech-Language Pathology (M.A.) (p. 252)
- Audiology (Au.D.) (p. 252)
- Communication Sciences and Disorders (Ph.D.) (p. 252)

## Speech-Language Pathology (M.A.) Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Applications must be made using the university's online application and the CSDCAS Centralized Application Service (<https://portal.csdcas.org/>). Deadline for receipt of all application materials for fall admission is January 15.

It is essential that prospective graduate students in this area confer with an advisor in the area of Speech-Language Pathology concerning academic, clinical and professional programs to meet certification requirements as set forth by the American Speech-Language-Hearing Association.

## Program Requirements

The Master of Arts degree is offered by the Department of Communication Sciences and Disorders (<http://www.clas.wayne.edu/CSD/>) under the following options:

**Plan A:** 54 - 60 credits, including an eight-credit thesis.

**Plan B:** 54 - 60 credits, including a three-credit essay.

**Plan C:** 54 - 60 credits in course work, plus written and/or oral comprehensive examinations in the major (total credits determined by major area of study).

## Audiology (Au.D.)

The Doctor of Audiology (Au.D.) program, offered by the Department of Communication Sciences and Disorders (<http://www.clas.wayne.edu/CSD/>), is designed to prepare audiology professionals to meet requirements for licensure (and certification, if desired) and is consistent with the standards of the Council on Academic Accreditation of the American Speech-Language-Hearing Association.

The program is specifically designed for individuals who have completed an undergraduate degree program in an accredited college or university and who have met the prerequisite requirements for admission to the Au.D. program. This is a four-year (eleven semester) full-time academic and clinical program. Most applicants who have completed an undergraduate degree in communication disorders meet our course work requirements for admission. Applicants with undergraduate degrees in other fields may need to complete prerequisite course requirements prior to admission to the graduate program.

Admission (p. 252) to this program is contingent upon admission to the Graduate School (p. 21). Applications must be made using the university's online application (<http://www.gradadmissions.wayne.edu/apply.php>) and the CSDCAS Centralized Application Service (<https://www.csdcas.org/>). Deadline for receipt of all application materials for fall admission is January 15.

Prerequisite courses for admission to the Au.D. program include coursework in behavioral and social sciences, mathematics, natural science, human communication, language acquisition, phonetics or acoustics, and an introductory course in human communication disorders. Most applicants will have also completed introductory coursework in speech-language pathology and audiology.

The Au.D. requires successful completion of 121-125 graduate credits in the major plus written and/or oral comprehensive examinations.

## Communication Sciences and Disorders (Ph.D.)

Admission to this program is contingent upon admission to the Graduate School (p. 21) and satisfaction of departmental application requirements (p. 252).

A minimum of ninety graduate credits beyond the baccalaureate is required for completion of the Ph.D. program. Most students exceed this requirement in the course of completing the degree. The student and his/her advisor work cooperatively to plan a program of study designed to establish the necessary skills and knowledge for successful completion

of the degree and in preparation for careers in research, higher education, and advanced clinical practice. As part of the program of study, the student will complete thirty credits in Doctoral Dissertation Research and Direction. The thirty credit dissertation registration requirement is fulfilled by registering for the courses SLP 9991, SLP 9992, SLP 9993, and SLP 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

**Candidacy:** In order to become a candidate for the Ph.D. degree, an applicant must successfully complete both a written and an oral qualifying examination.

## Criminology and Criminal Justice

*Office:* 3054 Faculty/Administration Building; 313-577-2705

*Chairperson:* Brad Smith

*Graduate Director:* Charles Klahm IV

*Academic Services Officer/Advisor:* Marianka Holloway

<https://clas.wayne.edu/cj> (<https://clas.wayne.edu/cj/>)

The Master of Science degree in Criminal Justice is designed to prepare students for positions in criminal justice and related agencies as well as prepare students who wish to pursue a Ph.D. in Criminal Justice or related fields. Students are provided with a broad educational foundation in criminal justice grounded in law and the social sciences. Study begins with an analysis of crime and the entire justice system. Advanced study focuses on the political, organizational, social, and behavioral aspects of various components of the system of criminal justice. Research courses give students the tools with which to independently analyze issues of crime and justice as well as the requisite skills for career development. The Master of Science degree is offered an in-person/hybrid format or fully online. Courses are offered in the following core areas depending on which program students choose: contemporary criminal justice, causes of crime, research methodology and data management analysis, administration in criminal justice, and a specialization of the student's choice.

Students in the Criminal Justice Graduate Program take core classes in Criminal Justice and are eligible to take elective courses in other Liberal Arts and Sciences departments and in departments in other colleges. This allows substantial flexibility in arranging a program of study that meets the student's goals.

- Criminal Justice (M.S.) (p. 253)
- Criminal Justice (J.D./M.S. Joint Degree) (p. 255)

## Criminal Justice (M.S.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Strong undergraduate social science preparation is recommended, and additional undergraduate course work may be specified in criminal justice or related areas where such preparation is inadequate.

In the application for graduate admission, students must indicate whether they will be completing the M.S. in Criminal Justice in

1. the traditional/hybrid program (*students in the traditional program can take online courses except for CRJ 7030*);
2. the completely online program (*students in the online program are only permitted to take online courses*).

In determining admission for the individual applicant, the Graduate Committee evaluates the student's undergraduate record (with special emphasis on upper division courses: junior/senior year), the level of difficulty of course work, as well as grade point average (GPA) in the student's major, the strength of the recommendations, and the quality of the personal statement. The minimum standard for admission as a regular Master's student is a cumulative weighted undergraduate GPA of 3.0 or better. Applicants with an undergraduate GPA between 2.75 and 2.99 may be considered for admission, but are required to take the Graduate Record Examination (GRE) and provide a written exception statement justifying why they are capable of graduate work and explaining why their undergraduate GPA is below 3.0.

Applicants to the Master of Science program in Criminal Justice must:

1. complete and submit the Graduate School's online application (<http://wayne.edu/admissions/graduate/>);
2. submit transcripts from the applicant's undergraduate school/college;
3. have two (2) letters of recommendation, at least one of which is strongly encouraged to be written by a former professor/instructor, submitted online; and
4. submit a personal statement.

Personal statements should address the applicant's qualifications, career goals, and interest in crime and justice related issues more generally. Personal statements must be no longer than two single-spaced pages. Statements must be submitted as part of the online application process.

Questions concerning the admission process should be directed to the Criminal Justice Department at 313-577-0772.

## Requirements – Traditional Program

The Master of Science in Criminal Justice degree is awarded upon successful completion of thirty credits. All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234). The traditional degree program is offered as follows:

Code	Title	Credits
<b>Core Courses</b>		<b>12</b>
CRJ 7020	The Nature of Crime	3
CRJ 7040	Evidence-Based Practices in Criminal Justice	3
CRJ 7860	Research Methods in Criminal Justice	3
Select one of the following:		3-4
CRJ 7400	Data Management and Analysis for Criminal Justice	
PS 5630	Statistics and Data Analysis in Political Science I	
SOC 6280	Social Statistics	
<b>Electives (12-18 credit hours):</b>		
Students may choose any graduate level CRJ electives		
Students electing a master's thesis (Plan A) take approved electives totaling at least 12 credits		
Students electing a master's essay (Plan B) choose electives totaling at least 15 credits		
Students electing coursework only option (Plan C) take approved electives totaling at least 18 credits		
CRJ 5995	Special Topics in Criminal Justice	
CRJ 7010	Contemporary Criminal Justice	
CRJ 7200	Public Policy and Criminal Justice	
CRJ 7060	Administration in Criminal Justice	
CRJ 7405	Wrongful Conviction	
CRJ 7060	Administration in Criminal Justice	
CRJ 7870	Master's Capstone Seminar in Criminal Justice	
CRJ 7990	Directed Study	
CRJ 7995	Special Topics in Criminal Justice and Criminology	
CRJ 7220	Delinquency and Justice	
CRJ 7230	Policing and Society	
CRJ 7240	Corrections	
Students choosing plan A elect the following:		6
CRJ 8999	Master's Thesis Research and Direction	

Students choosing Plan B elect the following:	3
CRJ 7999	Master's Essay Direction

**Elective Courses:** The elective courses are to be chosen after a conference with the Graduate Director to determine the plan which is most consistent with the student's educational and career goals. These courses will be specified in the student Plan of Work. Some elective credit may have to be used to satisfy the College of Liberal Arts and Sciences requirement that at least six credits in course work be at the 7000 level or higher, and that at least six credits (excluding core courses) be taken in the major area. With the exception of one 5000-level elective course, all remaining courses toward the degree must be taken at the 6000 level or higher.

**Transfer Credits:** The maximum number of credits that may be transferred in from other accredited colleges and universities is between six and eight semester credits for two courses. Transfer courses must be taken at the graduate level with a passing grade of 'B' or higher; the student must have had graduate status at the time the courses were taken.

## Requirements – Online Program

The Master of Science in Criminal Justice online degree is awarded upon successful completion of thirty credits. All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234). The online degree program is offered as follows:

Code	Title	Credits
<b>Core Courses (Online Program)</b>		<b>12</b>
CRJ 7020	The Nature of Crime	3
CRJ 7030	Research Methods for Professionals	3
CRJ 7040	Evidence-Based Practices in Criminal Justice	3
CRJ 7060	Administration in Criminal Justice	3
<b>Electives (15 - 18 credit hours):</b>		
Students may choose any graduate level CRJ electives		
Students electing a master's essay (Plan B) choose electives totaling at least 15 credits		
Students electing coursework only option (Plan C) take approved electives totaling at least 18 credits		
CRJ 5995	Special Topics in Criminal Justice	
CRJ 5996		
CRJ 7010	Contemporary Criminal Justice	
CRJ 7200	Public Policy and Criminal Justice	
CRJ 7060	Administration in Criminal Justice	
CRJ 7405	Wrongful Conviction	
CRJ 7990	Directed Study	
CRJ 7995	Special Topics in Criminal Justice and Criminology	
CRJ 7220	Delinquency and Justice	
CRJ 7230	Policing and Society	
CRJ 7240	Corrections	
CRJ 7400	Data Management and Analysis for Criminal Justice	
Students choosing plan B select master's essay direction:		3
CRJ 7999	Master's Essay Direction	

**Elective Courses:** The elective courses are to be chosen after a conference with the Graduate Director to determine the plan which is most consistent with the student's educational and career goals. These courses will be specified in the student Plan of Work. Some elective credit may have to be used to satisfy the College of Liberal Arts and Sciences requirement that at least six credits in course work be at the 7000 level or

higher, and that at least six credits (excluding core courses) be taken in the major area. With the exception of one 5000-level elective course, all remaining courses toward the degree must be taken at the 6000 level or higher.

**Transfer Credits:** The maximum number of credits that may be transferred in from other accredited colleges and universities is between six and eight semester credits for two courses. Transfer courses must be taken at the graduate level with a passing grade of 'B' or higher; the student must have had graduate status at the time the courses were taken.

## Criminal Justice (M.S./J.D. Joint Degree)

The Law School and the Department of Criminal Justice offer a joint degree program in criminal justice and law (M.S./J.D.). Students must be separately admitted to both the Law School and the Master of Science in Criminal Justice program.

Students must complete all the requirements for both degrees. Law School courses count for up to nine elective credits toward the Master of Science in Criminal Justice degree. A maximum of four Criminal Justice (CRJ) courses may be applied to the requirements for the J.D. degree. A student must complete the first year of law school before any CRJ courses may be taken toward the joint degree. CRJ courses may be taken concurrently with law school courses during the second and subsequent years. The first step for the joint degree is to be admitted into the law program at Wayne State University. The second step is to contact the Law School advising office and the Department of Criminal Justice Graduate Advisor to inquire on how to apply for the joint degree program.

## Economics

*Office:* 2074 Faculty/Administration Building; 313-577-3345  
*Chairperson:* Kevin Cotter  
*Administrative Assistant:* Katie Francek  
<https://clas.wayne.edu/economics> (<https://clas.wayne.edu/economics/>)

The Department encourages applications from students with broad intellectual interests as well as strong quantitative skills, regardless of their undergraduate majors.

The M.A. in Economics can be a terminal degree leading to careers in business, government and non-governmental organizations, or junior college teaching. Because many master's students study part-time, the Department schedules as many core courses in the evening as possible.

The Ph.D. curriculum provides thorough training for professional economists through course work, tutorials and research workshops. It gives students a solid foundation in economic theory and econometrics and offers several carefully selected fields of specialization. The Department's Ph.D. graduates choose careers in academia, research, and business.

- Economics (M.A.) (p. 255)
- Economics and Law (M.A./J.D. Joint Degree) (p. 256)
- Economics (Ph.D.) (p. 256)

## Economics (M.A.) Admission Requirements

Admission to this program is contingent on admission to the Graduate School (p. 21). Applicants to this program must hold a bachelor's degree, with an undergraduate grade point average of at least 3.0 for regular admission. Exceptions may be authorized only by the Department's Admissions Committee. Consistent with Graduate School requirements, international applicants must demonstrate English proficiency by obtaining a satisfactory score on the Test of English as a Foreign Language (TOEFL) or other test acceptable to the Graduate School.

Applicants are expected to have completed the following courses or their equivalents as undergraduate or post-bachelor students:

Code	Title	Credits
ECO 5000	Intermediate Microeconomics	4
ECO 5050	Intermediate Macroeconomics	4
ECO 5100	Introductory Statistics and Econometrics	4

MAT 2010 or a similar introductory course in differential and integral calculus provides minimal mathematics requirements. Additional courses in calculus and linear algebra are desirable although not required.

Regular admission may be granted to an applicant who has not completed these courses, but in this case they must be completed before taking 6000 or 7000-level courses.

## Program Requirements

Thirty-two graduate credits are required. Although the University offers various plans for M.A. degrees, the Department of Economics offers the Master of Arts degree under Plan C only, as described below.

For the M.A. Program, students must take:

Code	Title	Credits
<b>Theory Core</b>		
Take as early in the program as possible		

ECO 6000	Price and Allocation Theory	4
ECO 6050	Macroeconomics	4
ECO 6100	Introduction to Econometrics	4
<b>Sequence Courses</b>		
Select one of the following:		8
ECO 7050 & ECO 7060	Macroeconomic Theory I and Macroeconomic Theory II	
ECO 7000 & ECO 7010	Microeconomic Theory I and Microeconomic Theory II	
ECO 7100 & ECO 7110	Econometrics I and Econometrics II	
ECO 7200 & ECO 7210	Industrial Organization I and Industrial Organization II	
ECO 7300 & ECO 7310	and	
ECO 7400 & ECO 7410	Labor Economics and Human Resources and Economics of Human Resources	
ECO 7550 & ECO 7560	Economics of Health Care I and Economics of Health Care II	
<b>Elective Courses</b>		
Three 6000- or 7000-level courses		12
<b>Total Credits</b>		<b>32</b>

Students who concentrate in fields other than Health Economics or Industrial Organization must have taken a full year of calculus, at a minimum. In addition, the permission of the M.A. Director and the instructor is required. Neither a thesis nor an essay is required. Three written examinations are required. Students must pass written exams covering the microeconomics and macroeconomics core courses and a written exam covering their 7000 level concentration.

Students should file a Plan of Work with the M.A. Director as soon as possible after being admitted to the M.A. Program. A Plan of Work developed early helps students make sure that they take courses in the right order and complete their program quickly and efficiently.

**Candidacy:** The Graduate School does not authorize candidacy unless the applicant's grade point average is 3.0 or better. To be eligible for candidacy, the student must also file a Plan of Work, approved by the master's program advisor, with the graduate officer of the College of Liberal Arts and Sciences. The M.A. Director requires all M.A. students to file a Plan of Work by the end of the first semester in the Economics M.A. program. The Graduate School does not allow M.A. students to register if a Plan of Work has not been filed by the time twelve graduate credits have been earned.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Economics and Law (M.A./J.D. Joint Degree)

This department in cooperation with the Law School offers a joint degree program leading to a Master of Arts degree with a major in Economics and a Juris Doctor degree in law. Students in this program must be admitted to both the Law School and the Department of Economics and must complete all requirements for the Economics M.A. degree and all requirements for the J.D. degree. After admission to the Law School, the student must complete the first year of the J.D. program before electing additional economics courses.

## Economics (Ph.D.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Applicants to this program must hold a bachelor's degree and have a grade point average of at least 3.0. Applicants must include verbal, quantitative and analytical Graduate Record Examination scores and three letters of recommendation from officials or teaching staff of the institution(s) most recently attended. Applicants from other countries must demonstrate English proficiency by obtaining a satisfactory score on the Test of English as a Foreign Language (TOEFL). All candidates must submit a Statement of Purpose as part of their applications.

Applicants are expected to arrive with the following preparation:

Code	Title	Credits
ECO 5000	Intermediate Microeconomics	4
ECO 5050	Intermediate Macroeconomics	4
ECO 5100	Introductory Statistics and Econometrics	4

MAT 2010 and MAT 2020 or similar introductory courses in differential and integral calculus providing minimal mathematics requirements. Additional courses in calculus and linear algebra are highly desirable.

### Program Requirements

Ph.D. students in economics must successfully complete ninety credits in graduate study, consisting of sixty credits in course work and thirty credits in dissertation research. Advancement to candidacy will require about three years of full-time study beyond the bachelor's degree and is granted upon completion of the following requirements:

Code	Title	Credits
Completion of a Plan of Work <sup>1</sup>		
Completion of coursework in economic theory: <sup>2</sup>		
ECO 7020	Fundamentals of Economic Analysis I	4
ECO 7021	Fundamentals of Economic Analysis II	4
ECO 7000	Microeconomic Theory I	4
ECO 7010	Microeconomic Theory II	4
ECO 7050	Macroeconomic Theory I	4
ECO 7060	Macroeconomic Theory II	4
Completion of coursework in two of the following five fields: advanced macroeconomics, health economics, industrial organization, international economics, and labor economics.		
Completion of coursework in quantitative methods:		
ECO 7100	Econometrics I	4
ECO 7110	Econometrics II	4
ECO 7120	Econometrics III	4
An oral examination on research		

<sup>1</sup> Must be approved by the Director of Graduate Studies in Economics and by the Dean of the Graduate School. The Plan of Work must be filed by the completion of the first year of doctoral study.

<sup>2</sup> Proficiency must be demonstrated by passing qualifying examinations in microeconomic theory, macroeconomic theory, and two selected fields.

The thirty credit dissertation registration requirement is fulfilled by registering for the courses ECO 9991, ECO 9992, ECO 9993, and ECO 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.



**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Minor Requirements:** Students must complete at least eight credits in a minor field, subject to the approval of the Director of Graduate Studies in Economics. These courses may include other economics courses not specified in the major requirements.

**Doctoral Dissertation Outline and Record of Approval:** This form must be approved by the student's dissertation advisory committee, the Director of Graduate Studies in Economics, and the Dean of the Graduate School.

**The Doctoral Dissertation:** The doctoral candidate is required to submit a doctoral dissertation on a topic satisfactory to his/her Faculty Dissertation Committee.

**Public Lecture:** Upon acceptance of the dissertation, the student will deliver a final lecture in accordance with Graduate School procedures.

## Employment and Labor Relations

Office: 5401 Cass (255 Walter P. Reuther Library)  
313-577-0175

<https://clas.wayne.edu/labor-studies> (<https://clas.wayne.edu/labor-studies/>)

- Employment and Labor Relations (M.A.) (p. 257)

## Employment and Labor Relations (M.A.)

The Master of Arts in Employment and Labor Relations (MAELR) is an inter-college as well as an interdisciplinary graduate degree program jointly sponsored by the Departments of Economics and Psychology in the College of Liberal Arts and Sciences, and Management and Information Systems in the School of Business Administration. Policy direction is provided by the Academic Policy Committee composed of one representative of each sponsoring department

MAELR is designed to provide professional preparation for a career in human resource management and labor-management relations. Students will be prepared in this discipline for positions in government, business and union organizations, and the program staff will assist in the appropriate job placement of its graduates. This program will also provide knowledge and skills for persons who contemplate entering or who are already engaged in self-employment involving labor relations, such as labor arbitration.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission is limited to holders of baccalaureate degrees from accredited institutions and is granted only to those applicants who evidence promise of success in industrial relations study.

Admission to the program requires three letters of recommendation and completion of the program application form, in addition to the transcripts and the application form required by Graduate Enrollment Services. The letters of recommendation must be written by college or university professors under which the applicant has studied, and/ or current or former employers. The Graduate Record Examination (GRE) or the Graduate Management Admissions Test (GMAT) is required of all applicants. Applications will be evaluated on the basis of the following:

1. the overall or upper-division grade point average;
2. GRE and GMAT scores;
3. applicant's performance in previous graduate courses, if any;
4. quality of the applicant's employment experience at increasing levels of responsibility; and,
5. other appropriate indicators of successful performance as a graduate student, including the content of reference appraisals.

Students applying to the program who have completed a graduate degree, may be exempt from submitting GRE and GMAT scores.

## Prerequisites

Students who have been admitted but who do not possess all of the following prerequisites must remedy any deficiency, without graduate credit, before graduate courses are taken in the degree program: statistics (equivalent to ECO 5100, BA 2300, or EER 7630); introductory microeconomics (such as ECO 2010) and an equivalent of PSY 2100, Psychology in the Work Place. A grade of 'C' or better is required of all prerequisite courses.

## Advising

All academic advising will be done by the Academic Services Officer. Students should call the MAELR Office (313-577-0175) for information on advising hours.

## Program Requirements

MAELR is offered primarily as a Plan C master's program requiring the satisfactory completion of at least thirty-six credits in graduate course work, including a core curriculum of twenty-four credits and twelve electives. Students may petition the ELR program director to write a Plan B (essay), which will represent three of their twelve elective credits.

Code	Title	Credits
<b>Core Courses</b>		
ECO 6480	Advanced Economics of Work	3
ELR 7000	Introduction to Labor and Employment Relations	3
ELR 7450	Employment Relations Law in North America	3
ELR 8500	Strategic Analysis of North American Labor and Human Resources Issues (Capstone course: prerequisites include all other Core Courses) <sup>1</sup>	3
MGT 7640	Management of Human Resources	3
MGT 7750	Managing Employee Relations	3
MGT 7780/ DR 7210	Workplace Negotiations	3
ELR 7550	Selected Topics in Employment and Labor Relations <sup>2</sup>	3
<b>Elective Courses</b>		
Select twelve credits from the following:		12
ELR 7010	Health Care, Retirement, and Employee Benefit Plans	
ELR 7400	Labor Relations Law in North America	
ELR 7420	Labor and American Politics	
ELR 7430	Public Sector Labor Relations	
ELR 7600	Internship in Employment and Labor Relations	
ELR 7700	Current and Future Trends in Collective Bargaining	
ELR 7990	Directed Study	
ELR 7999	Master's Essay Direction	
ELR 8000	International Employment Labor Relations and Human Resources	
HIS 7290	Readings in American Labor History	
HIS 7300	Readings in the History of American Capitalism	
HIS 8060	Seminar in North American Labor History	
SOC 8700	Seminar in Social Inequality	
SOC 8801	Topics in the Sociology of Labor	
SOC 8803	Globalization, Gender, and Work Transformations	
<b>Total Credits</b>		<b>36</b>

<sup>1</sup> ELR 8500 should be taken in the last nine credits of the program and only after the completion of the six other Core Courses.

<sup>2</sup> The topic and methodology of a Directed Study must have the prior approval of the Director, who must also approve the appointment of the faculty member who will supervise the project. For courses specifically associated with this program see Employment and Labor Relations Courses (ELR).

<sup>3</sup> Selection of electives will be guided by the student's prior preparation and career objectives and will require the approval of the Program Director. Electives are not limited to courses offered by the sponsoring departments.

A Core Course may be waived only if the student demonstrates, to the satisfaction of the Academic Policy Committee, that he/she has completed an equivalent graduate-level course with a grade of 'B' or better and elects an additional approved elective course in its place.

**Academic Scholarship:** Graduate students in the MAELR program will be required to earn a 'B' (3.0) average to satisfy degree requirements. *If a grade below 'B' is received in a core course, that course must be repeated promptly and a grade of 'B' or better obtained. A grade of 'C' in two graduate courses will constitute a sufficient basis for dismissal from the program.* All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Candidacy:** Students are expected to file a Plan of Work when nine graduate credits in the MAELR curriculum have been earned. Upon approval of the Plan of Work the student's rank will be changed from 'applicant' to 'candidate' provided the applicant's grade point average is at least 3.0.

# English

Office: Room 9408, 5057 Woodward; 313-577-2450  
Chairperson: Caroline Maun  
Associate Chairperson and Director of Undergraduate Studies: Lisa Ze Winters  
Director of Composition: Richard Marback  
Director of Creative Writing: Donovan Hohn  
Director of Graduate Studies: Chera Kee  
Academic Services Officer: Anglesia Brown  
Program Specialist: Laurean Butcher  
<https://clas.wayne.edu/english> (<https://clas.wayne.edu/english/>)

The English Department is engaged in researching and re-conceptualizing what it means to read and write English in the twenty-first century and invites energetic, intellectually adventurous students to join in this pursuit. The graduate program is designed for students who show promise in the formal study and teaching of language, literature, film, rhetoric, composition, and culture, and seek to pursue the Master of Arts and/or Doctor of Philosophy in these areas.

The M.A. program can be used to prepare for doctoral work and/or as a terminal degree used to develop expertise in particular areas of study (e.g., professional writing, creative writing). Students may earn an M.A. with a major in English, an M.A. with a major in English and a concentration in Creative Writing, or an M.A. with a major in English and a concentration in Technical and Professional Writing.

The doctoral program provides focus for graduate studies in English and ensures that students receive an education at the highest possible level. Our department offers two Ph.D. concentrations: one in Literature, Culture, Media and Writing and one in Rhetoric and Writing Studies.

- English (M.A.) (p. 259)
- English (Ph.D.) (p. 260)

## English (M.A.) Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Application deadlines are **October 15** (for Winter admission) and **January 15** (for Fall admission with funding consideration). The deadline for fall admission without funding consideration is **August 1**. The English Department requires that all applicants provide a statement of purpose, two academic letters of reference, and sample essay from a previous English course. M.A. applicants who wish to emphasize creative writing also must submit a creative writing sample.

Applicants are also required to submit an application supplement. View the graduate admissions page (<https://clas.wayne.edu/english/admissions/grad/>) of the English Department's website for more details.

Please note that graduate admissions decisions are made by a committee and not by individual faculty members.

## Program Requirements

The Master of Arts degree in English is offered as a Concentration in Creative Writing (Plan A or Plan C), Concentration in Technical and Professional Writing (Plan C), or as a Plan B or Plan C option. These options correspond to the Graduate School's Plans A, B or C (p. 33) for the master's degree.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Plan A or Plan C: Concentration in Creative Writing

The M.A. program in English with a Concentration in Creative Writing is designed to prepare students to go on to a Master of Fine Arts or doctoral work in creative writing or to train students with a specific interest in creative writing that may not lead to further advanced study.

The M.A. in English with a Concentration in Creative Writing requires thirty-three credits of course work, which must include five 7000-level courses from the English Department's course list (p. ) in the Graduate Bulletin. ENG 6800 can count as a 7000-level course for MA students in this concentration.

Students in the M.A. program in English with a Concentration in Creative Writing should plan to take an additional 15-18 credits of creative writing courses at the 5000-, 6000-, and 7000- levels, taken from the following:

Code	Title	Credits
ENG 5530	Topics in Poetry	3
ENG 5550	Topics in Fiction	3
ENG 5695	Publishing Practicum	3
ENG 5860	Topics in Creative Writing	3
ENG 5870	Poetry Writing Workshop	3
ENG 5880	Fiction Writing Workshop	3
ENG 5885	Topics in Creative Non-Fiction Writing	3
ENG 6006	Teaching Creative Writing	2
ENG 6800	Advanced Creative Writing	3
ENG 7800	Seminar in Creative Writing	3

In discussion with their advisor prior to submitting the plan of work, students in this concentration will choose to undertake either Plan A (thesis) or Plan C (portfolio):

Code	Title	Credits
ENG 8999	Master's Thesis Research and Direction	6
The submission of a zero-credit portfolio		0

The Plan C portfolio should consist of:

- a minimum of 60 pages of the student's best, assigned work from their graduate courses satisfying the M.A. degree.
- a five to seven page reflective essay that serves as an introduction of the works included in the portfolio as well as an explanation of how the works chosen satisfy the learning objectives of the M.A. program. The essay should situate the works within the student's overall trajectory through the M.A. program while also providing an overview of what the student has learned within their particular sub-field(s) in English Studies during their time in the program.

## Plan B

The M.A. program in English Plan B is designed to prepare students to go on to doctoral work in English or to train students with a specific interest in English that may not lead to further advanced study.

The M.A. in English requires thirty-three credits, which must include five 7000-level courses from the English Department's course list (p. ) in the Graduate Bulletin as well as a three-credit essay. Demonstration of proficiency in at least one foreign language is also required if directed to do so by an academic advisor based on the research topic of the Master's Essay (for further details, consult the Director of Graduate Studies).

Code	Title	Credits
Select five 7000-level courses in English at Wayne State University		
ENG 7999	Master's Essay Direction	3

Students in the M.A. program in English Plan B should plan to take an additional 10-15 credits at the 5000-, 6000-, and 7000- levels from the English Department's course list (p. ) in the Graduate Bulletin.

### Plan C

The M.A. program in English Plan C is designed to prepare students to go on to doctoral work or to train students with specific interests (e.g., professional writing) that may not lead to further advanced study in English. The M.A. program in English Plan C requires thirty-three credits of course work, which must include:

Code	Title	Credits
Select five 7000-level courses in English at Wayne State University		
The submission of a zero-credit portfolio		

Students in the M.A. program in English Plan C should plan to take an additional 13-18 credits at the 5000-, 6000-, and 7000- levels from the English Department's course list (p. ) in the Graduate Bulletin.

The Plan C portfolio should consist of:

- a minimum of 60 pages of the student's best, assigned work from their graduate courses satisfying the M.A. degree.
- a five to seven page reflective essay that serves as an introduction of the works included in the portfolio as well as an explanation of how the works chosen satisfy the learning objectives of the M.A. program. The essay should situate the works within the student's overall trajectory through the M.A. program while also providing an overview of what the student has learned within their particular sub-field(s) in English Studies during their time in the program.

### Plan C: Concentration in Technical and Professional Writing

The M.A. degree in English with a concentration in technical and professional writing is designed to accommodate students with specific interests in preparing for careers as writers, or in publishing, or who want to pursue advanced study in a PhD program.

The M.A. program in English with a concentration in Technical and Professional Writing requires thirty-three credits of course work, which must include:

Code	Title	Credits
ENG 7066	Writing in Multiple Settings	3
ENG 7820	Graduate Internship Practicum	2
ENG 7840	Technical and Professional Communication	3
ENG 7870	Teaching Practicum in Technical and Professional Writing	2

Students in the M.A. program in English with a Concentration in Technical and Professional Writing should plan to take 9 credits, taken from the following:

Code	Title	Credits
ENG 5005	Digital Storytelling	3
ENG 5695	Publishing Practicum	3
ENG 5825	Grant, Proposal, and Public Writing	3
ENG 5830	Writing in the Workplace	3
ENG 5840	Topics in Professional Writing	3

ENG 5895	Topics in Environmental, Nature, and Science Writing	3
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For the remaining 14 credit hours of elective courses, students may choose from the 5000-, 6000-, and 7000-level courses in the English Department's course list (p. ) in the current Graduate Bulletin.

The Plan C portfolio should consist of:

- a minimum of 60 pages of the student's best, assigned work from their graduate courses satisfying the M.A. degree.
- a five to seven page reflective essay that serves as an introduction of the works included in the portfolio as well as an explanation of how the works chosen satisfy the learning objectives of the M.A. program. The essay should situate the works within the student's overall trajectory through the M.A. program while also providing an overview of what the student has learned within their particular sub-field(s) in English Studies during their time in the program.

## English (Ph.D.) Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

Students may apply to the Ph.D. program with either a B.A. or M.A. degree. Students who apply with a B.A. will have the opportunity to receive an M.A. degree before the completion of their Ph.D.

The application deadline is **January 15**, and every Ph.D. student must begin the program in the fall semester.

The English Department requires that all applicants provide a statement of purpose indicating areas of research interest, two academic letters of reference, and a sample of the student's scholarly or critical writing. Applicants should also submit the English Department's Graduate Admissions form (<https://clas.wayne.edu/english/admissions/grad/>).

Please note that graduate admissions decisions are made by a committee and not by individual faculty members.

The Ph.D. program requires ninety credits of course work beyond the B.A. degree. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Major Requirements

1. Sixty credits of course work (for students entering the program with an M.A., up to thirty credits may be transferred from another institution).
2. Completion of distribution requirements as listed below.
3. Thirty credits of dissertation courses (ENG 9991, ENG 9992, ENG 9993, ENG 9994) taken in consecutive academic year semesters following the completion of regular course work and the Qualifying Exam.
4. All courses must be at the 6000-, 7000- or 8000-level; permission from the Director of Graduate Studies is required to take courses at lower levels.

## Concentrations

The Ph.D. program has two concentrations: Literature, Culture, Media, and Writing; and Rhetoric and Writing Studies. Each doctoral student must select a concentration early enough in her or his program to fulfill the course distribution requirements.

*An admissions moratorium has been approved for the Film and Media Studies concentration, effective Winter 2022.*

Literature, Culture, Media and Writing

Code	Title	Credits
ENG 7001	Introduction to Doctoral Studies in English	3
At least two 2-credit-hour teaching practica <sup>1</sup>		

<sup>1</sup> Students who are Graduate Teaching Assistants may substitute ENG 7850, Pedagogical Practicum I, or ENG 7860, Pedagogical Practicum II, for this requirement.

Rhetoric and Writing Studies

Code	Title	Credits
ENG 7062	Designing Research in Composition and Rhetoric	3
ENG 7007	Composition Theory	3
ENG 7061	Rhetorical Theory	3
ENG 8007	Seminar in Rhetoric and Composition Studies	3
ENG 7820	Graduate Internship Practicum	2
Two teaching practica at the 6000- or 7000- level		
At least two courses from the following list:		
ENG 7063	Historical Studies in Composition and Rhetoric	
ENG 7064	The Teaching of Writing	
ENG 7065	Writing Technologies	
ENG 7840	Technical and Professional Communication	
Two additional courses in English, Communication, or related field		
Electives (transfer credit or additional courses in English or Communication)		

Graduate Teaching Assistants

Each Graduate Teaching Assistant must take ENG 7850, Pedagogical Practicum I, in the first semester in which she or he holds the assistantship, and ENG 7860, Pedagogical Practicum II, in the fourth semester in which she or he holds the assistantship.

Foreign Language Requirement

Demonstration of reading proficiency in at least one foreign language if directed to do so by an academic advisor based on the research topic of the dissertation. The preferred method for demonstrating proficiency is to pass a translation examination (for further details, consult the Director of Graduate Studies).

Final Qualifying Examination

One year before she or he plans to take the Qualifying Examination (QE), each student meets with her or his advisor to declare the field and emphasis in which she or he plans to be examined. Designated fields reflect the current division of the discipline as published by the Modern Language Association. Emphases are designed to underscore the necessity of embedding doctoral work in ongoing critical debates among the various disciplines and sub-disciplines that make up English studies. An emphasis should identify a topical or thematic category and/or articulate a theoretical or methodological approach. Students will also need to list two (or more) courses that support the declared emphasis. The student writes a brief description of her or his field and emphasis and the dissertation director presents this to the Department Graduate Committee. The Graduate Committee selects the other two members of the QE Committee. The QE Committee then works with the student to construct a list of texts on which she or he is to be examined (roughly 100-120 texts). The exam itself should be scheduled no later than the semester following the completion of course work. The QE Committee

composes questions for a six-hour written examination. Within one week after taking the written exam, the student then takes a ninety-minute oral examination. The student passes or fails the exam in its entirety. No later than one month after successful completion of the Qualifying Examination, the student selects a dissertation committee consisting of three members of the English Department graduate faculty and one appropriately qualified individual who is not a member of the English Department. Members of this committee may or may not have been members of the student’s QE Committee.

Dissertation Defense

A final Public Lecture Presentation-Defense, after the dissertation has been completed, is also required.



# Environmental Science and Geology

Office: 0224 Old Main; 313-577-2506

Chairperson: Mark Baskaran

<https://clas.wayne.edu/esg> (<https://clas.wayne.edu/esg/>)

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- Environmental Science (M.S.) (p. 262)
- Geology (M.A.) (p. 263)
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## Environmental Science (Online M.A.)

The human impact on Earth's environment over past two centuries is unprecedented. An incredible 300% increase in human population growth in the 20<sup>th</sup> century has led to an increase in energy consumption by more than 1000% since 1950. Never in the history of the Earth has such a drastic increase in the atmospheric CO<sub>2</sub> occurred over such a short period of time. Education on the *science of the changing environment* is at the forefront of human endeavor, and a significant fraction of the global GDP is currently being spent on addressing this science (e.g. increasing spatial extent of harmful algal blooms, ocean acidification, ever increasing amount of micro-plastics in fresh and salt water systems, effects of global climate change including flooding/drought and other weather-related catastrophic events). This online master's program addresses many of the anthropogenic environmental changes listed above. This inter-disciplinary program includes courses from several branches of science including coastal and environmental geology, environmental biology, low-temperature aqueous geochemistry, environmental isotope geochemistry, biogeochemistry, remote sensing, big data analytics, climate science, toxicology, water quality, etc.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). The minimum grade point average required for regular admission to the program is 2.75. Specific admissions requirements include: evidence of a completed baccalaureate degree from an accredited college or university; college-level coursework in geology, biology, mathematics, physics, and chemistry; two letters of recommendation; and a one-page statement of purpose.

## Program Requirements

The online M.A. in Environmental Science requires a minimum of 30 credits. The program is offered under master's program Plan C (coursework only). All course work must be completed in accordance with the regulations of the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the College of Liberal Arts and Sciences (<https://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/academic-regulations/>).

Code	Title	Credits
<b>Core Courses</b>		
ESG 6400	Isotopes: Applications in Geological and Environmental Sciences *	
	or ESG 6180 Environmental DNA for Ecosystem Monitoring and Conservation	
	or ESG 6190 Environmental Microbiology	
ESG 5700	Environmental Law and Policy	
Capstone Course		
<b>Elective Courses</b>		
ESG 5420	Mathematical Methods in Earth Science	
ESG 6160	Applied Remote Sensing	

ESG 6165	Biodiversity Changes in the Anthropocene
ESG 6170	Spatial Statistics and Analyses for Environmental Applications
ESG 6180	Environmental DNA for Ecosystem Monitoring and Conservation
ESG 6190	Environmental Microbiology
ESG 6250	Fluvial Geomorphology
ESG 6320	Coastal Geology and Processes in the Great Lakes
ESG 6400	Isotopes: Applications in Geological and Environmental Sciences

\* The core course requirement for ESG 6400 - Isotopes: Applications in Geological and Environmental Sciences can be replaced with ESG 6180 - Environmental DNA for Ecosystem Monitoring and Conservation or ESG 6190 - Environmental Microbiology.

## Environmental Science (M.S.)

The human impact on Earth's environment over past two centuries is unprecedented. An incredible 300% increase in human population growth in the 20<sup>th</sup> century has led to an increase in energy consumption by more than 1000% since 1950. Never in the history of the Earth has such a drastic increase in the atmospheric CO<sub>2</sub> occurred over such a short period of time. Education on the *'science of the changing environment'* is at the forefront of human endeavor, and a significant fraction of the global GDP is currently being spent on addressing this science (e.g. increasing spatial extent of harmful algal blooms, ocean acidification, ever increasing amount of micro-plastics in fresh and salt water systems, effects of global climate change including flooding/drought and other weather-related catastrophic events, etc.). The master's program addresses many of the anthropogenic environmental changes listed above. This inter-disciplinary program include courses from several branches of science including coastal and environmental geology, environmental biology, low-temperature aqueous geochemistry, environmental isotope geochemistry, biogeochemistry, remote sensing, big data analytics, climate science, toxicology, water quality, etc.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). The minimum grade point average required for regular admission to the program is 2.75. Specific admissions requirements include: evidence of a completed baccalaureate degree from an accredited college or university; college-level coursework in geology, biology, mathematics, physics, and chemistry; two letters of recommendation; and a one-page statement of purpose.

## Program Requirements

The Master of Science in Environmental Science requires a minimum of 30 credits. This will include 8-credit of M.S. thesis (ESG 8999) and 1-credit of seminar (ESG 6100). This is Plan A option only. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

The M.S. degree typically includes courses chosen from the following list.

Code	Title	Credits
ESG 5000	Geological Site Assessment	4
ESG 5120	Environmental Geochemistry	4
ESG 5150	Soils and Soil Pollution	4
ESG 5210	Environmental and Applied Geophysics	4
ESG 5360	Hydrology and Water Resources	4
ESG 5420	Mathematical Methods in Earth Science	4

ESG 5510	Environmental Fate and Transport of Pollutants	4
ESG 5600	Special Topics in Environmental Science and Geology	4
ESG 5650	Applied Geologic Mapping	4
ESG 5700	Environmental Law and Policy	3
ESG 6100	Seminar: Environmental Science and Geology	1
ESG 6160	Applied Remote Sensing	3
ESG 6165	Biodiversity Changes in the Anthropocene	4
ESG 6170	Spatial Statistics and Analyses for Environmental Applications	3
ESG 6180	Environmental DNA for Ecosystem Monitoring and Conservation	4
ESG 6190	Environmental Microbiology	4
ESG 6250	Fluvial Geomorphology	3
ESG 6300	Emerging Organic Contaminants in Global Environment	4
ESG 6320	Coastal Geology and Processes in the Great Lakes	3
ESG 6400	Isotopes: Applications in Geological and Environmental Sciences	4
ESG 8999	Master's Thesis Research and Direction	8
BIO 5040/7045	Biometry	4
BIO 5100/7110	Aquatic Ecology	4
BIO 5440/7440	Terrestrial Ecology	4
BIO 5490/7490	Population and Community Ecology	3
BIO 5540/7540	Landscape Ecology	3
BIO 5740/7740	General Entomology	4
BIO 6190	Advanced Special Topics *	6
BIO 6420	Ecotoxicology and Risk Assessment	3
BIO 7310	Sustainability of Urban Environmental Systems	2
CE 5230	Water Supply and Wastewater Engineering	3
CE 5610	Advanced Highway Design	3
CE 7995	Special Topics in Civil Engineering II *	3
ECO 5230	Environmental Economics	4
ECO 6800	Advanced Urban and Regional Economics	4
UP 5430	Cities and Food	3
UP 6470	Environmental Planning	3
ANT 5140	Biology and Culture	3
ANT 5060	Urban Anthropology	3
FPH 7420	Principles of Environmental Health	3
PS 5560	Biopolitics	4

\* Topics to be chosen in consultation with an advisor.

## Geology (M.A.)

The Master of Arts in geology is designed to provide the students with special training in the environmental aspects of this discipline in keeping with the urban setting of Wayne State University. Students receiving the degree of Master of Arts in geology will be especially prepared to work in a capacity that deals with or provides solutions to environmental problems in which an intimate relationship between the environment and earth science is an important factor.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Additionally, candidates are required to have an undergraduate major in geology, or a strong background in geology supported by courses in related

sciences, and a grade point average of at least 3.0 in the major. Prerequisite study should include many of the following courses: mineralogy, petrology, sedimentation, geomorphology, environmental geochemistry, structural geology; plus a course in any two of the following fields: paleontology, stratigraphy, geological site assessment, geostatistics, and geophysics.

Two semesters of calculus, a year of chemistry and a year of physics are also necessary. Deficiencies in prerequisites may be made up concurrently with graduate work.

The verbal and quantitative parts of the Graduate Record Examination are required for admission to the graduate program, and the applicant must file three personal letters of recommendation and a personal statement describing goals and motivations for pursuing an M.S. Geology degree before acceptance.

Students transferring from other fields should make an appointment with the Graduate Officer or the Department Chairperson who will review the applicant's background and make recommendations regarding the graduate program.

## Program Requirements

The Master of Arts in geology is offered as Plan B (essay) or Plan C (coursework). Both options require 32 credits.

### Plan B - Master's Essay

Code	Title	Credits
<b>Students must select 28 credits from following courses:</b>		<b>28</b>
ESG 5000	Geological Site Assessment	
ESG 5120	Environmental Geochemistry	
ESG 5150	Soils and Soil Pollution	
ESG 5210	Environmental and Applied Geophysics	
ESG 5360	Hydrology and Water Resources	
ESG 5420	Mathematical Methods in Earth Science	
ESG 5450	Hydrogeology	
ESG 5510	Environmental Fate and Transport of Pollutants	
ESG 5650	Applied Geologic Mapping	
ESG 6400	Isotopes: Applications in Geological and Environmental Sciences	
GEL 6500	Earth Resources and the Environment	
ESG 7999	Master's Essay Direction	4
<b>Total Credits</b>		<b>32</b>

### Plan C - Coursework

Code	Title	Credits
<b>Students must select 32 credits from following courses:</b>		<b>32</b>
ESG 5000	Geological Site Assessment	
ESG 5120	Environmental Geochemistry	
ESG 5150	Soils and Soil Pollution	
ESG 5210	Environmental and Applied Geophysics	
ESG 5360	Hydrology and Water Resources	
ESG 5420	Mathematical Methods in Earth Science	
ESG 5450	Hydrogeology	
ESG 5510	Environmental Fate and Transport of Pollutants	
ESG 5650	Applied Geologic Mapping	
ESG 6400	Isotopes: Applications in Geological and Environmental Sciences	

Students can only take up to a maximum of 8 credits out of the required 32 credits outside the Geology Department and a maximum of 4 Geology credits are allowed as ESG 7990 Directed Study. If additional credits are required, then, courses may be selected from other graduate courses in chemical and/or civil engineering, or graduate courses in chemistry or physics. Graduate courses in disciplines other than geology require the approval of the thesis advisor and the graduate committee. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

The graduate program may be modified by the Geology Department to conform to the needs of individual candidates.

Candidacy for the Master's degree is established by submitting an acceptable Plan of Work to the Graduate Officer of the College of Liberal Arts and Sciences. This plan must be submitted and approved by the College by the time twelve graduate credits have been earned. For Plan-B, the student will choose one faculty member as advisor in the department for writing the research paper.

## Geology (M.S.)

The Master of Science with a major in Geology consists of advanced studies that are designed to prepare the student to assume a position of responsibility as a professional geologist; or to enter a program leading to the doctor of philosophy in geology or a related discipline at another university. The Master of Science in geology is designed to provide the students with special training in the environmental aspects of this discipline in keeping with the urban setting of Wayne State University. Students receiving the degree of Master of Science in geology will be especially prepared to work in a capacity that deals with or provides solutions to environmental problems in which an intimate relationship between the environment and earth science is an important factor.

The master's degree program involves the rigorous, in-depth study of major concepts pertaining to the earth, and the techniques used to study them. Entrance into the program assumes a firm foundation in the basic and elemental concepts of geology.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Additionally, candidates are required to have an undergraduate major in geology, or a strong background in geology supported by courses in related sciences, and a grade point average of at least 3.0 in the major. Prerequisite study should include many of the following courses: mineralogy, petrology, sedimentation, geomorphology, environmental geochemistry, structural geology; plus a course in any two of the following fields: paleontology, stratigraphy, geological site assessment, geostatistics, and geophysics.

Two semesters of calculus, a year of chemistry and a year of physics are also necessary. Deficiencies in prerequisites may be made up concurrently with graduate work.

The verbal and quantitative parts of the Graduate Record Examination are required for admission to the graduate program, and the applicant must file three personal letters of recommendation and a personal statement describing goals and motivations for pursuing an M.S. Geology degree before acceptance.

Students transferring from other fields should make an appointment with the Graduate Officer or the Department Chairperson who will review the applicant's background and make recommendations regarding the graduate program.

## Program Requirements

The Master of Science in geology is offered by this department only under the following option:

**Plan A:** *Thirty-two credits including an eight credit thesis.*

Students must complete twenty-four credits in graduate course work from the following courses:

Code	Title	Credits
<b>Students must select six following courses:</b>		<b>24</b>
ESG 5000	Geological Site Assessment	
ESG 5120	Environmental Geochemistry	
ESG 5150	Soils and Soil Pollution	
ESG 5210	Environmental and Applied Geophysics	
ESG 5360	Hydrology and Water Resources	
ESG 5420	Mathematical Methods in Earth Science	
ESG 5450	Hydrogeology	
ESG 5510	Environmental Fate and Transport of Pollutants	
ESG 5650	Applied Geologic Mapping	
ESG 6400	Isotopes: Applications in Geological and Environmental Sciences	
GEL 6500	Earth Resources and the Environment	
ESG 8999	Master's Thesis Research and Direction	8
<b>Total Credits</b>		<b>32</b>

Students can only take up to a maximum of 8 credits out of the required 32 credits outside the Geology Department and a maximum of 4 Geology credits are allowed as GEL 7990 Directed Study. If additional credits are required, then, courses may be selected from other graduate courses in chemical and/or civil engineering, or graduate courses in chemistry or physics. Graduate courses in disciplines other than geology require the approval of the thesis advisor and the graduate committee. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

The graduate program may be modified by the Geology Department to conform to the needs of individual candidates.

**Candidacy** for the Master's degree is established by submitting an acceptable Plan of Work to the Graduate Officer of the College of Liberal Arts and Sciences. This plan must be submitted and approved by the College by the time twelve graduate credits have been earned. Once candidacy is established, the student, in consultation with his/her advisor and the Geology Department graduate officer, will select the thesis committee. The committee will be comprised of a minimum of three members of the graduate faculty with the student's advisor serving as one member and committee chairperson. Two of the three members of the committee (including the advisor) must be from the Department of Geology. The third member may be from another department if this third member will be making a significant contribution to the applicant's course work and/ or thesis study.

**Cognate Requirements:** Although there are no cognate courses required for the Master of Science degree, geology majors should consult their advisor regarding cognate courses which will be of value to their particular program. Depending on interests and future goals, courses in

mathematics, physics, chemistry, and computer science, and especially those in chemical and civil engineering may be of particular value.

## History

*Office:* 3094 Faculty/Administration Building; 313-577-2525

*Acting Chairperson:* Eric Ash

<https://clas.wayne.edu/history> (<https://clas.wayne.edu/history/>)

Why study history? We explore the past, in all its diversity and complexity, because it is a vital way to understand the world we live in and how it came to be. The 21<sup>st</sup> century is a complicated place. Change comes fast and happens continually. Historians delve into cause and effect, investigate change and constancy, and examine human agency. Far from being just about memorizing “names and dates,” the skills and tools we use in studying the past can also help us to make sense of our rapidly changing world and to find our place within it. Knowing our history is about knowing ourselves!

The history department offers graduate coursework in United States, European, and World history. Our award-winning faculty's wide-ranging topical expertise includes labor history, women's and gender history, the history of violence, environmental history, the history of science and technology, and the history of capitalism. Our curriculum incorporates professional development and career exploration opportunities for all master's and doctoral students, both inside and outside of education and academia.

Graduate education in history prepares students for diverse careers such as teaching positions at the secondary, community college, or university levels; government research positions; management of archival resources or historical agencies; and museums and other public history careers. Our graduate programs also provide sufficient flexibility to serve the needs of students with career goals where an understanding of history is crucial (such as law or journalism) or useful (such as banking, criminal justice, social work, research, public policy, or publishing). We also welcome those who simply have an avocational interest in acquiring advanced knowledge of history.

## Degree programs

1. The **M.A. in History** is an academic degree for students who want to seek employment in government jobs within the state department or intelligence field, teach history at the secondary school level, who are considering pursuing a doctorate, who want to conduct independent research, or who are lifelong learners with an interest in historical scholarship. The M.A. in History degree is also offered in an all-online format.
2. The **M.A. in Public History** (MAPH) is a professional degree for students seeking careers in museums, at historical societies or historic sites, in cultural resource management, in nonprofits, in government agencies, and in allied fields. It is also appropriate for secondary school teachers who seek to gain experience in project-based, community-engaged pedagogy.
3. The **Ph.D. in History** is an academic degree and the culmination of a historian's academic training. Our doctoral program prepares students professionally for both academic and non-academic careers, with an emphasis on career diversity.
4. The **World History Bridge Certificate** provides a graduate-level credential in world history, an area of growing demand at both the secondary and post-secondary levels of education. The certificate program is especially suitable for history and social studies teachers and teachers in training.
5. The **M.A./J.D joint degree** leads to a simultaneous receipt of an M.A. from the Department of History and a J.D. from the Law School. Students must be accepted to the Law School before they may apply to the M.A. in History.



- The **M.A./M.L.I.S. joint degree** leads to a simultaneous receipt of an M.A. from the Department of History and an M.L.I.S. from the School of Information Science. Students may either apply simultaneously to the M.A. and M.L.I.S. programs or apply to one program and, after acceptance, apply to the other.
- The **MAPH/M.L.I.S. joint degree** leads to a simultaneous receipt of an M.A. in Public History from the Department of History and an M.L.I.S. from the School of Information Science. Students may either apply simultaneously to the M.A. and M.L.I.S. programs or apply to one program and, after acceptance, apply to the other.

## Career outlook

- Where our M.A. alumni work (<https://clas.wayne.edu/history/grad/ma/career-outcomes/>)
- Where our M.A.P.H. alumni work (<https://clas.wayne.edu/history/grad/ma-public-history/career-outcomes/>)
- Where our Ph.D. alumni work (<https://clas.wayne.edu/history/grad/phd/career-outcomes/>)
- History (M.A.) (p. 266)
- History (M.A.P.H.) (p. 267)
- History (Ph.D.) (p. 268)
- History and Law (M.A./J.D. Joint Degree) (p. 268)
- History and Library and Information Sciences (M.A./M.L.I.S. Joint Degree) (p. 269)
- Public History and Library and Information Science (M.A.P.H./M.L.I.S. Joint Degree) (p. 269)
- World History (Bridge Graduate Certificate) (p. 270)

## History (M.A.)

The M.A. in History is an academic degree for students who want to seek employment in government jobs within the state department or intelligence field, teach history at the secondary school level, who are considering pursuing a doctorate, who want to conduct independent research, or who are lifelong learners with an interest in historical scholarship. The M.A. degree can be completed in two years of full-time study. Students who wish to complete the degree entirely or primarily in person, but who may elect to take some online courses, should enroll in the History M.A. program. Students who wish to complete the degree fully online should enroll in the History M.A. - online program.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Earning a graduate degree is an undertaking which requires a considerable commitment of time and financial resources. The Department of History expects applicants to its graduate program to arrive well-prepared to undertake a rigorous course of study.

The department normally considers only applicants whose undergraduate grade point average is at least 3.00 overall and at least 3.25 in a minimum of eighteen semester credits in history and related subjects at the advanced undergraduate level. Applicants should have or be in the process of acquiring relevant foreign language preparation to enter the area in which they wish to study. The department requires that all applicants submit a statement of purpose, a writing sample, two letters of recommendation from former instructors, a resume or curriculum vitae, and copies of transcripts from each college or university previously attended. Please consult the Department of History (<https://clas.wayne.edu/history/>) graduate handbook for detailed instructions for preparing application materials.

Application deadlines are **October 15** (for Winter admission), **January 15** (for Fall admission with funding consideration), and **April 15** (for Fall admission without funding consideration).

## M.A. in History (Plan A/Thesis)

(30 credits, 22 in regular coursework and 8 in thesis credits; courses may be taken in person or online)

Code	Title	Credits
HIS 7830	Methods and Research in History	3
HIS 7832	History Practicum	3
HIS 8999	Master's Thesis Research and Direction	8
At least three (3) courses in an M.A. field (U.S., Europe, World); HIS 7990, Directed Study, may only count toward the three courses if taken for three (3) or more credits		
At least two (2) 8000-level seminars, at least one which is in the M.A. field		
No more than two (2) courses may be taken at the 5000- or 6000-level without permission of the advisor and DGS (granted by their signatures on the Plan of Work); 5000- and 6000-level courses must be offered for graduate credit to count toward the M.A. degree		

## M.A. in History (Plan B/Essay)

(30 credits, 27 in regular coursework and 3 in essay credits; courses may be taken in person or online)

Code	Title	Credits
HIS 7830	Methods and Research in History	3
HIS 7832	History Practicum	3
HIS 7999	Master's Essay Direction	3
At least three (3) courses in an M.A. field (U.S., Europe, World); HIS 7990, Directed Study, may only count toward the three courses if taken for three (3) or more credits		
At least two (2) 8000-level seminars, at least one which is in the M.A. field		
No more than two (2) courses may be taken at the 5000- or 6000-level without permission of the advisor and DGS (granted by their signatures on the Plan of Work); 5000- and 6000-level courses must be offered for graduate credit to count toward the M.A. degree		

## M.A. in History (Online)

(30 credits, 27 in regular coursework and 3 in essay credits; all courses must be taken online)

Code	Title	Credits
HIS 7830	Methods and Research in History (normally taken in the first fall semester of enrollment)	3
HIS 7832	History Practicum (normally taken in the first or second winter semester of enrollment)	3
HIS 7999	Master's Essay Direction	3
HIS Electives (21 credits), including at least two 8000-level seminars		21
<b>Total Credits</b>		<b>30</b>

## History AGRADE Requirements

The History department's M.A. and M.A.P.H. degrees both offer the College of Liberal Arts and Sciences' Accelerated Graduate Enrollment (AGRADE) program to qualified undergraduates. AGRADE provides the opportunity for top students to enroll simultaneously in an undergraduate and graduate degree program, and to apply a maximum of 16 credits



toward both their undergraduate and master's degrees in the student's major or closely aligned field.

Students electing AGRADE programs may expect to complete both their bachelor's and master's degrees in only five years of full-time study. This allows students to save both time and money as they pursue their undergraduate and graduate degrees simultaneously, making the most of their experiences at Wayne State. Students must apply for the AGRADE program during the semester that they earn 90 credits toward an undergraduate degree (typically during junior year). Applicants must have a minimum cumulative GPA of 3.3 and final approval from their major department. In addition, the Department of History requires the following materials for application to AGRADE:

- completion of the WSU History AGRADE application; a copy of the student's unofficial transcript(s);
- a copy of the student's HIS 3000 paper or another paper based on primary source research;
- a one-page single-spaced letter of interest that conveys clearly and concisely the student's proposed area(s) of study, including period, region, topic, and/or approach, tentative career goals, and the faculty member(s) with whom the student would like to work and why;
- a letter of recommendation from a faculty member (the faculty member should email their recommendation directly to the Director of Graduate Studies).

More information about AGRADE is available through CLAS (<https://clas.wayne.edu/programs/accelerated-graduate-enrollment/#grad-status>).

## History – Public History (M.A.P.H.)

The M.A. in Public History (M.A.P.H.) is a professional degree for students seeking careers in museums, at historical societies or historic sites, in cultural resource management, in nonprofits, in government agencies, and in allied fields. It is also appropriate for secondary school teachers who seek to gain experience in project-based, community-engaged pedagogy. The M.A.P.H. degree can be completed in two years of full-time study.

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Earning a graduate degree is an undertaking which requires a considerable commitment of time and financial resources. The Department of History expects applicants to its graduate program to arrive well-prepared to undertake a rigorous course of study.

The department normally considers only applicants whose undergraduate grade point average is at least 3.00 overall and at least 3.25 in a minimum of eighteen semester credits in history and related subjects at the advanced undergraduate level. The department requires that all applicants submit a statement of purpose, a writing sample, two letters of recommendation (at least one should be from a former instructor; the other may be a professional reference from a supervisor for a history-related internship or other employment), a resume or curriculum vitae, and copies of transcripts from each college or university previously attended. Please consult the Department of History (<https://clas.wayne.edu/history/>) graduate handbook for detailed instructions for preparing application materials.

Application deadlines are **October 15** (for Winter admission), **January 15** (for Fall admission with funding consideration), and **April 15** (for Fall admission without funding consideration).

## Program Requirements

For the Master's in Public History degree at least 33 credits are required, as follows:

Code	Title	Credits
HIS 7830	Methods and Research in History	3
HIS 7835	Public History	3
HIS 7855	Memory and History	3
HIS 7998	Internship in Public History	1-3
HIS 7999	Master's Essay Direction	1-3
At least one 8000-level HIS seminar		
At least two additional HIS courses numbered 5000 or above		
At least two public history electives		

Students may either develop a specialization composed of the three related courses (as approved by their advisor and the Graduate Director by their signatures on the student's plan of work) or concurrently complete one of three graduate certificates: Archival Administration (p. 218), Nonprofit Management (p. 291), or Museum Practice (p. 240).

Candidacy must be established by filing an official Plan of Work with the Department when twelve credits have been earned.

Academic Scholarship: All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

HIS 7261 (African American History and Memory) can be taken in place of HIS 7855.

Public History Electives: [https://clas.wayne.edu/history/docs/publichistory\\_electives.pdf](https://clas.wayne.edu/history/docs/publichistory_electives.pdf) ([https://clas.wayne.edu/history/docs/publichistory\\_electives.pdf](https://clas.wayne.edu/history/docs/publichistory_electives.pdf))

### History AGRADE Requirements

The History department's M.A. and M.A.P.H. degrees both offer the College of Liberal Arts and Sciences' Accelerated Graduate Enrollment (AGRADE) program to qualified undergraduates. AGRADE provides the opportunity for top students to enroll simultaneously in an undergraduate and graduate degree program, and to apply a maximum of 16 credits toward both their undergraduate and master's degrees in the student's major or closely aligned field.

Students electing AGRADE programs may expect to complete both their bachelor's and master's degrees in only five years of full-time study. This allows students to save both time and money as they pursue their undergraduate and graduate degrees simultaneously, making the most of their experiences at Wayne State. Students must apply for the AGRADE program during the semester that they earn 90 credits toward an undergraduate degree (typically during junior year). Applicants must have a minimum cumulative GPA of 3.3 and final approval from their major department. In addition, the Department of History requires the following materials for application to AGRADE:

- completion of the WSU History AGRADE application; a copy of the student's unofficial transcript(s);
- a copy of the student's HIS 3000 paper or another paper based on primary source research;
- a one-page single-spaced letter of interest that conveys clearly and concisely the student's proposed area(s) of study, including period, region, topic, and/or approach, tentative career goals, and the faculty member(s) with whom the student would like to work and why;

- a letter of recommendation from a faculty member (the faculty member should email their recommendation directly to the Director of Graduate Studies).

More information about AGRAD is available through CLAS (<https://clas.wayne.edu/programs/accelerated-graduate-enrollment/#grad-status>).

## History (Ph.D.)

The Doctor of Philosophy in History is an academic degree and the culmination of a historian's academic training. Our doctoral program prepares students professionally for both academic and non-academic careers, with an emphasis on career diversity.

Completing the Ph.D. typically involves at least four years of full-time study for students entering with a master's degree and at least six years for students entering with a bachelor's degree. Students who are admitted without a master's degree may choose to earn an M.A. by completing a thesis or essay as part of their coursework.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Earning a graduate degree is an undertaking which requires a considerable commitment of time and financial resources. The Department of History expects applicants to its graduate program to arrive well-prepared to undertake a rigorous course of study.

The department normally considers only applicants whose undergraduate and/or master's grade point average is at least 3.00 overall and at least 3.25 in a minimum of eighteen semester credits in history and related subjects. Attainment of an M.A. in History is not required of doctoral applicants. Applicants should have or be in the process of acquiring relevant foreign language preparation to enter the area in which they wish to study. The department requires that all applicants submit a statement of purpose, a writing sample, two letters of recommendation from former instructors, a resume or curriculum vitae, Graduate Record Examination scores, and copies of transcripts from each college or university previously attended. Please consult the Department of History (<https://clas.wayne.edu/history/>) graduate handbook for detailed instructions for preparing application materials.

The application deadline is **January 15** for Fall admission.

The Ph.D. program requires ninety credits of course work beyond the B.A. degree.

Code	Title	Credits
<b>Program Requirements</b>		
HIS 7830	Methods and Research in History (normally taken in the first fall semester of enrollment)	3
HIS 7832	History Practicum (normally taken in the first winter semester of enrollment)	3
At least four 8000-level HIS research seminars		12
At least 15 additional credits in HIS classes numbered 7000 or above		15
HIS 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
HIS 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
HIS 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
HIS 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
Successful completion of Responsible Conduct of Research training		

Attainment of Skill Area Competence in three fields outside of traditional academic history

Please consult the Department of History (<https://clas.wayne.edu/history/>) Graduate Handbook for a detailed explanation of these requirements.

**Admission to Candidacy** requires completion of the following requirements:

1. Filing of an approved Plan of Work with the Graduate School;
2. Satisfactory completion of written and oral qualifying examinations in two major and one minor history fields.

**Dissertation:** The dissertation is a work of original historical research and presentation on a topic selected by the student with the approval of the student's advisor and accepted as successfully completed by both the advisor and a dissertation committee. Upon completion of the dissertation, the student will be required to make a public lecture presentation-defense and to submit the dissertation for certification to the Graduate School.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the College of Liberal Arts and Sciences (<https://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/academic-regulations/>).

## History and Law (M.A./J.D. Joint Degree)

The combined M.A./J.D. Program leads to the simultaneous receipt of a J.D. from the Law School and a M.A. from the Department of History. Students must complete at least 30 credits in History as well as all degree requirements for the J.D. Because the Law School may credit some of the non-law credits toward the J.D. degree, a student may be able to complete the combined M.A./J.D. program in one semester beyond the time usually required to complete the J.D. alone.

## Admission Requirements

**Applicants to this program must be admitted to both the Law School and Department of History M.A. program.**

Law students may apply to the Department of History for admission to the M.A. program, and upon admission may enroll in history courses after successful completion of their first year of legal studies. Admission to this program is contingent upon admission to the Graduate School (p. 21). Earning a graduate degree is an undertaking which requires a considerable commitment of time and financial resources. The Department of History expects applicants to its graduate program to arrive well-prepared to undertake a rigorous course of study.

The department normally considers only applicants whose undergraduate grade point average is at least 3.00 overall and at least 3.25 in a minimum of eighteen semester credits in history and related subjects at the advanced undergraduate level. The department requires that all applicants submit a statement of purpose, a writing sample, two letters of recommendation from former instructors, a resume or curriculum vitae, and copies of transcripts from each college or university previously attended. Please consult the Department of History (<https://clas.wayne.edu/history/>) graduate handbook for detailed instructions for preparing application materials.

Application deadlines are **October 15** (for Winter admission) and **April 15** (for Fall admission).

MA/JD joint degree students must complete all requirements for a JD as described in the Graduate Bulletin as well as 30 credit hours for the History MA (Plan B). Coursework for the History MA consists of 12 credits in three core courses, plus at least 18 credits of elective coursework, 8 credits of which can be in LEX classes and at least 10 of which must be in HIS classes. Students are encouraged to take a variety of History courses and to pursue research topics that have a legal and/or constitutional history focus. Neither the History Department nor the Law School can guarantee the availability of any required or elective course in any given semester.

Code	Title	Credits
<b>History MA Requirements:</b>		
HIS 7830	Methods and Research in History	
HIS 7999	Master's Essay Direction (on a topic related to legal or constitutional history, 3 cr.)	
HIS 8050/ LEX 8386	Seminar in Legal History (taken twice with different instructors, 6 cr.)	
8 credit hours in LEX electives		
At least 10 credit hours in HIS electives		

JD Requirements: As specified in the current Graduate Bulletin (p. 228)

## History and Library and Information Science (M.A./M.L.I.S. Joint Degree)

Joint-degree programs allow students to earn two degrees with fewer credits than if the degrees are earned separately. Students who enroll in the joint program will earn both the M.L.I.S. and M.A. in History degree. Graduates will increase their job market potential and be prepared to enter a new workforce that is capable of appraising and describing historical records, creating websites, and preserving electronic documents. Candidates must complete the required courses as outlined for both programs in order to graduate. Core courses in one program may not be used as elective courses in the other; fourteen credits of electives may be double-counted.

### Admission Requirements

*Applicants to this program must be admitted to both the School of Information Sciences and Department of History M.A. program.*

Admission to this program is contingent upon admission to the Graduate School (p. 21). Earning a graduate degree is an undertaking which requires a considerable commitment of time and financial resources. The Department of History expects applicants to its graduate program to arrive well-prepared to undertake a rigorous course of study.

The department normally considers only applicants whose undergraduate grade point is at least 3.00 overall and at least 3.25 in a minimum of eighteen semester credits in history and related subjects at the advanced undergraduate level. Applicants should have or be in the process of acquiring relevant foreign language preparation to enter the area in which they wish to study. The department requires that all applicants submit a statement of purpose, a writing sample, two letters of recommendation from former instructors, a resume or curriculum vitae, and copies of transcripts from each college or university previously attended. Please consult the Department of History (<https://clas.wayne.edu/history/>) graduate handbook for more details on how to prepare application materials.

Application deadlines are **October 15** (for Winter admission), **January 15** (for Fall admission with funding consideration), and **April 15** (for Fall admission without funding consideration).

## Requirements: Library and Information Science

Students will complete twenty-nine credits in core and elective Information Science courses and seven credits in History elective courses.

Code	Title	Credits
<b>Required INF Courses</b>		
INF 6010	Information in Society	3
INF 6080	Fundamentals of Information Technology	3
INF 6120	Access to Information	3
INF 6210	Organization of Information	3
INF 7040	Management and Leadership	3
INF 7996	Research for the Information Professions	3
<b>Elective Courses</b>		
INF Elective Courses		11
HIS Elective Courses		7
<b>Total Credits</b>		<b>36</b>

## Requirements: History

Students will complete twenty-three credits of History courses and seven credits of Information Science elective courses.

Code	Title	Credits
HIS 7830	Methods and Research in History	3
HIS 7999	Master's Essay Direction	3
HIS electives (17 cr.), including:		17
At least one 8000-level History seminar		
No more than two (2) courses may be taken at the 5000- or 6000-level without permission of the advisor and DGS (granted by their signatures on the Plan of Work); 5000- and 6000-level courses must be offered for graduate credit to count toward the MA degree		
INF courses (7 cr.)		7
<b>Total Credits</b>		<b>30</b>

Total for both degrees: fifty-three credits (no more than thirteen credits may be double-counted).

## Public History and Library and Information Science (M.A.P.H./M.L.I.S. Joint Degree)

Students in this joint program will earn both the MAPH and an MLIS degree. Graduates of the program benefit from the joint preparation in public history and library and information science and increase their potential for finding employment in either field. Students are prepared to enter a new workforce with the skills to appraise and describe historical records, create and maintain websites, preserve electronic documents, and communicate with a public audience. Upon successful completion of this program students will be prepared for employment in a wide range of settings, including libraries, archives, museums, state and federal agencies, and the private sector.

Public history is applied history, and the MAPH leads to employment in occupations as diverse as museum work, library and archival research,

public policy analysis, documentary filmmaking, state and national parks, and tourism. Public historians provide an essential service by making historical scholarship accessible to a broad public audience. Libraries, archives, and other institutions that hire information management professionals increasingly seek employees who can communicate with broad public audiences about their collections and holdings, and who can create exhibits and public programming. The MAPH/MLIS joint degree program responds to the changing professional expectations for librarians and archivists.

## Admission Requirements

*Applicants to this program must be admitted to both the School of Information Sciences and Department of History MAPH program.*

Admission to this program is contingent upon admission to the Graduate School (p. 21). Earning a graduate degree is an undertaking which requires a considerable commitment of time and financial resources. The Department of History expects applicants to its graduate program to arrive well-prepared to undertake a rigorous course of study.

The department normally considers only applicants whose undergraduate grade point is at least 3.00 overall and at least 3.25 in a minimum of eighteen semester credits in history and related subjects at the advanced undergraduate level. The department requires that all applicants submit a statement of purpose, a writing sample, two letters of recommendation (at least one should be from a former instructor; the other may be a professional reference from a supervisor for a history-related internship or other employment), a resume or curriculum vitae, and copies of transcripts from each college or university previously attended. Please consult the Department of History (<https://clas.wayne.edu/history/>) graduate handbook for more details on how to prepare application materials.

Application deadlines are **October 15** (for Winter admission), **January 15** (for Fall admission with funding consideration), and **April 15** (for Fall admission without funding consideration).

Students complete a minimum of 55 credits total for both degrees (14 hours are double-counted). For the MAPH degree, students complete 33 hours of MAPH credits, inclusive of 8 hours of INF credits that will also count toward the student's MLIS degree. In SIS, students complete 30 hours of LIS credits and 6 hours of History credits, for a total of 36 credits. The History credits would also count toward the student's MAPH electives.

## Requirements: Library and Information Science

The MLIS degree requires 36 credits (including 6 credits of HIS courses).

Code	Title	Credits
INF 6010	Information in Society	3
INF 6080	Fundamentals of Information Technology	3
INF 6120	Access to Information	3
INF 6210	Organization of Information	3
INF 7040	Management and Leadership	3
INF 7996	Research for the Information Professions	3
INF course electives - Students should use INF electives to fulfill the MAPH methodology and public history elective requirements.		12
HIS course electives		6
<b>Total Credits</b>		<b>36</b>

## Requirements: Public History

The MAPH degree requires 33 credits (Including 8 credits of INF courses). The course work includes 15 credits in core coursework, and 18 credits of MAPH Track requirements.

### Core courses

Code	Title	Credits
HIS 7835	Public History	3
HIS 7855	Memory and History	3
HIS 7998	Internship in Public History	3
HIS 7999	Master's Essay Direction	3
INF 7710	Archival Administration	3
or INF 7740	Archives and Libraries in the Digital World	
or INF 7770	Oral History: A Methodology for Research	
<b>Total Credits</b>		<b>15</b>

### MAPH Track Requirements

Code	Title	Credits
Core course		3
History seminar		3
History electives		6
Public History electives - students in the joint MAPH/MLIS program must select two from among a variety of INF elective courses, including:		6
INF 7440	Advanced Web Development	
INF 7710	Archival Administration	
INF 7730	Administration of Audio Visual Collections	
INF 7740	Archives and Libraries in the Digital World	
INF 7770	Oral History: A Methodology for Research	
INF 7780	Description and Access for Archives	
INF 7885	Cultural Heritage Institutions: Management and Leadership	
<b>Total Credits</b>		<b>18</b>

## History – World History (Bridge Graduate Certificate)

The Bridge Graduate Certificate in World History provides a graduate-level credential in world history, an area of growing demand at both the secondary and post-secondary levels of education. The certificate program is especially suitable for history and social studies teachers and teachers in training. Students can apply all of their certificate coursework to the Master of Arts in History or Public History if they decide to pursue an additional degree.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Earning a graduate degree is an undertaking which requires a considerable commitment of time and financial resources. The Department of History expects applicants to its graduate program to arrive well-prepared to undertake a rigorous course of study.

The department normally considers only applicants whose undergraduate grade point average is at least 3.00 overall and at least 3.25 in a minimum of eighteen semester credits in history and related subjects at the advanced undergraduate level. The department requires that all applicants submit a statement of purpose and copies of transcripts from each college or university previously attended. Please consult



the Department of History (<https://clas.wayne.edu/history/>) graduate handbook for detailed instructions for preparing application materials,

Application deadlines are **October 15** (for Winter admission) and **April 15** (for Fall admission).

World History Bridge Certificate students complete **4 courses** for a minimum **12 credits**, as follows:

Core course—HIS 8310, World History Seminar (3 cr.)

Electives—At least 9 credits of HIS courses numbered 5000 or above, *at least* one of which has a global or comparative focus. Courses focused exclusively on US or European history cannot be counted toward the certificate. Students should aim for a regional distribution in their course selection, rather than take multiple courses focused on a single world region. Please consult the Department website for a list of approved courses.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

# Linguistics

Office: Room 10303, 5057 Woodward; 313-577-8642  
Director: Haiyong Liu  
<https://clas.wayne.edu/linguistics> (<https://clas.wayne.edu/linguistics/>)

Linguistics is devoted to the scientific study of language structure and use. The Linguistics Program at Wayne State offers an interdisciplinary approach to this field, permitting students to explore a wide range of topics and issues in language research. The program is administered by a director and an advisory committee of participating faculty who regularly teach courses for the program. The core linguistics courses are offered on a regular basis. Elective courses are offered in the following areas: (a) linguistics and a language; (b) language structure; (c) language variation and change; (d) language acquisition and processing; and (e) sociolinguistics and discourse/pragmatics.

Training in linguistics prepares students for advanced work in linguistic research, as well as for employment in teaching English and foreign languages; computer systems (especially natural language processing); broadcasting, mass media and journalism; publishing and editing; translation; international business; intercultural communication and negotiation; law; and generally any profession requiring the precise use or analysis of speech or writing.

- Linguistics (M.A.) (p. 271)
- Linguistics (Graduate Certificate) (p. 273)

## Linguistics (M.A.) Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants to the linguistics program must have taken at least one year of a foreign language.

## Program Requirements

The master’s degree is offered by the College of Liberal Arts and Sciences with both a Plan B and a Plan C master’s options. Plan B requires a minimum of thirty credits in course work plus a three-credit essay. Plan C requires a minimum of thirty-three credits that include at least two 7000-level seminars. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

Programs are planned in consultation with the linguistics program advisor. To be admitted to candidacy, a coherent Plan of Work, listing both completed and proposed courses, must be submitted to the College by the time twelve credits have been earned.

Code	Title	Credits
Required Courses		
LIN 5290	Phonology	3
LIN 5300	Syntax	3
LIN 5700	Introduction to Linguistic Theory	3
Language-use Course <sup>1,2</sup>		3
Select one of the following:		
LIN 5210	Arabic Sociolinguistics	
LIN 5320	Language and Societies	
LIN 5770	Sociolinguistics	
LIN 5900	Culture, Language and Cognition	
LIN 6720	Topics in Language (Field Methods)	
LIN 6720	Topics in Language (Pidgins and Creoles)	



LIN 6720	Topics in Language (Pragmatics)	
LIN 6720	Topics in Language (Language Variations)	
LIN 7720	Advanced Studies in Language Use	
<b>Seminar Course</b> <sup>1</sup>		<b>3</b>
Select one of the following:		
LIN 7320	Seminar in Hispanic Linguistics	
LIN 7710	Advanced Studies in Linguistic Structure	
LIN 7720	Advanced Studies in Language Use	
<b>Elective Courses</b>		<b>15</b>
The remaining courses are electives chosen in consultation with an advisor. Courses may be chosen from any one or more of the areas listed on the next tab. (A maximum of twelve credits may be earned in LIN 6720).		
LIN 7999	Master's Essay Direction	3
<b>Total Credits</b>		<b>33</b>

<sup>1</sup> The language-use and seminar course requirements may not be satisfied by the same course.

<sup>2</sup> The language use course involves either the analysis of speech data acquired in fieldwork or theories that address language use.

<sup>3</sup> Students following the Plan C coursework-only option should choose one additional 7000-level seminar in lieu of the Master's Essay Direction course.

## Elective Courses

Selected in consultation with an advisor, courses may be chosen from any one or more of the areas listed below. (A maximum of twelve credits may be earned in LIN 6720).

## Linguistics and a Language

Students may complete up to nine credits in advanced language skills or in the linguistics of the chosen language as part of their electives. These credits are to be selected in consultation with an advisor.

## Language Structure

Code	Title	Credits
LIN 5050	Advanced Symbolic Logic	4
LIN 5200	Modal Logic	4
LIN 5220	Introduction to Chinese Linguistics	3
LIN 5230	Structure of Arabic	3
LIN 5240	Grammar of Chinese	3
LIN 5570	Philosophy of Language	4
LIN 5715	Morphology	3
LIN 5730	English Grammar	3
LIN 5745	Semantics	3
LIN 5900	Culture, Language and Cognition	3
LIN 6720	Topics in Language (chosen in consultation with an advisor)	3
LIN 7320/SPA 8420	Seminar in Hispanic Linguistics	3
LIN 7710	Advanced Studies in Linguistic Structure	3
SPA 6400	Introduction to Hispanic Linguistics	3

## Language Variation and Change

Code	Title	Credits
LIN 5100	Languages of Asia	3
LIN 5320	Language and Societies	3
LIN 5715	Morphology	3
LIN 5770	Sociolinguistics	3

LIN 6720	Topics in Language (chosen in consultation with an advisor)	3
LIN 7300	Comparative Romance Linguistics	3
LIN 7320/SPA 8420	Seminar in Hispanic Linguistics	3
LIN 7720	Advanced Studies in Language Use	3
ITA 6400	Languages of Italy	3
SPA 7510	History of the Spanish Language	3

## Language Acquisition and Processing

Code	Title	Credits
LIN 5080	Phonetics	3
LIN 5360	Child Language Acquisition	3
LIN 5750	Theories of Second Language Acquisition	3
LIN 5900	Culture, Language and Cognition	3
LIN 7320/SPA 8420	Seminar in Hispanic Linguistics	3
PSY 7080	Human Cognition	3
PSY 7440	Cognitive Development	3
SLP 5300	Introduction to Speech-Language Pathology	3
SPA 5200	Spanish Phonetics	3

## Sociolinguistics and Discourse/Pragmatics

Code	Title	Credits
LIN 5210	Arabic Sociolinguistics	3
LIN 5320	Language and Societies	3
LIN 5770	Sociolinguistics	3
LIN 6720	Topics in Language (chosen in consultation with an advisor)	3
LIN 7320/SPA 8420	Seminar in Hispanic Linguistics	3
LIN 7720	Advanced Studies in Language Use	3

# Linguistics (Graduate Certificate)

This certificate program provides basic training to graduate students of various disciplines or students already with a B.A. degree who want to develop an understanding of how language is structured, acquired and used and/or whose career development would benefit from some background in linguistics. Admission to this program is contingent upon admission to the Graduate School (p. 21).

Students must complete a minimum of twelve graduate-level credits, including at least one 7000-level LIN course. The plan of work is developed in consultation with the Linguistics program advisor. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234). No transfer credit will be accepted.

Code	Title	Credits
Required courses		
LIN 5700	Introduction to Linguistic Theory	3
LIN 5290	Phonology <sup>1</sup>	3
or LIN 5300	Syntax	
Elective courses		
Select a minimum of two courses from the list below (one course must be 7000 or above):		6
LIN 5100	Languages of Asia	
SPA 5200	Spanish Phonetics	
LIN 5210	Arabic Sociolinguistics	
LIN 5220	Introduction to Chinese Linguistics	
LIN 5230	Structure of Arabic	
LIN 5240	Grammar of Chinese	
LIN 5290	Phonology	
LIN 5300	Syntax	
LIN 5320	Language and Societies	
LIN 5360	Child Language Acquisition	
LIN 5570	Philosophy of Language	
LIN 5715	Morphology	
LIN 5745	Semantics	
LIN 5750	Theories of Second Language Acquisition	
LIN 5770	Sociolinguistics	
LIN 5900	Culture, Language and Cognition	
SPA 6400	Introduction to Hispanic Linguistics	
LIN 6700	History of Arabic	
LIN 6720	Topics in Language ( Topics such as: pragmatics, historical linguistics, history of English, language and cognition, language and gender, language and variation, language and evolution. )	
LIN 7320	Seminar in Hispanic Linguistics	
SPA 7510	History of the Spanish Language	
LIN 7710	Advanced Studies in Linguistic Structure (Current issues in linguistic theory, including but not limited to topics in phonology, morphology, syntax, semantics. )	
LIN 7720	Advanced Studies in Language Use (Current problems in language use, including issues in language variation, pidgins and creoles, first language acquisition, language disorders, language perception and production, and linguistic stylistics. )	
Total Credits		12

<sup>1</sup> If both LIN 5290 and LIN 5300 are chosen, then one course will apply toward the elective requirements.

# Mathematics

Office: 1150 Faculty/Administration Building; 313-577-2479  
Chairperson: Hengguang Li  
<https://clas.wayne.edu/math> (<https://clas.wayne.edu/math/>)

The courses offered by the Department of Mathematics serve several purposes: they supply the mathematical preparation necessary for students specializing in the physical, biological or social sciences, in business administration, in engineering, and in education; they provide a route by which students may arrive at the level of research competency in any of several special mathematical areas; they allow students to prepare themselves for work as mathematicians and statisticians in industry and government; and they give an opportunity to all inquisitive students to learn something about modern mathematical ideas.

- Mathematics (M.S.) (p. 274)
- Mathematics (M.A.) (p. 275)
- Mathematical Statistics (M.A.) (p. 275)
- Applied Mathematics (M.A.) (p. 276)
- Data Science and Business Analytics (M.S.) (p. 278)
- Mathematics (Ph.D.) (p. 279)

## Mathematics (M.S.)

The M.S. in Mathematics is the most rigorous program at the Master's level and is designed for students who intend to study at the Ph.D. level in mathematical sciences, as well as for other students who are looking for a challenge.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

The entrance requirements for the MS in Mathematics program include successful completion of course work equivalent to the following:

Code	Title	Credits
Calculus sequence:		
MAT 2010	Calculus I	
MAT 2020	Calculus II	
MAT 2030	Calculus III	
MAT 2250	Elementary Linear Algebra	3
MAT 2150	Differential Equations and Matrix Algebra	4
or MAT 2350	Elementary Differential Equations	
MAT 5070	Elementary Analysis	4
MAT 5420	Algebra I	4

As preparation for graduate study, the Department of Mathematics strongly recommends undergraduate course work along the line of the Prospective Graduate Study Concentration, described in the Mathematics B.A. and B.S. degree programs in the Undergraduate Bulletin.

## Program Requirements

The Master of Science in Mathematics is offered under the following options:

**Plan A:** Twenty-six credits in course work plus an eight credit thesis.

**Plan B:** Twenty-nine credits in course work plus a three credit essay.

**Plan C:** Thirty-two credits in course work.

### Degree Requirements

Code	Title	Credits
At least twenty-four credits in course work from the Department of Mathematics, including credits earned toward a thesis or essay under Plan A or Plan B options.		
Select one of the following (if not previously completed):		
MAT 5420 & MAT 5430 & MAT 6420	Algebra I and Algebra II and Advanced Linear Algebra	
MAT 6420 & MAT 7400	Advanced Linear Algebra and Advanced Algebra I	
Select one of the following (if not previously taken):		
MAT 5600 & MAT 5610 & MAT 6600	Introduction to Analysis I and Introduction to Analysis II and Complex Analysis	
MAT 6600 & MAT 7600	Complex Analysis and Real Analysis I	
Select one of the following:		
MAT 6500	Topology I (if not previously taken)	
MAT 7500	Topology II	
Select at least two of the following (other courses may be approved by the Departmental Graduate Committee on an individual basis):		
STA 5030	Statistical Computing and Data Analysis	
MAT 5100	Numerical Methods I	
MAT 5110	Numerical Methods II	
MAT 5210	Advanced Calculus	
MAT 5220	Partial Differential Equations	
MAT 5230	Complex Variables and Applications	
MAT 5280	Methods of Differential Equations	
MAT 5400	Elementary Theory of Numbers	
MAT 5410	Applied Linear Algebra	
MAT 5520	Introduction to Topology	
MAT 5530	Elementary Differential Geometry and its Applications	
MAT 5700	Introduction to Probability Theory	
MAT 5710	Introduction to Stochastic Processes	
MAT 5770	Mathematical Models in Operations Research	
STA 5800	Introduction to Mathematical Statistics	
MAT 5870	Methods of Optimization	
STA 6840	Applied Regression Analysis	
MAT 7200	Ordinary Differential Equations	
MAT 7210	Partial Differential Equations	
MAT 7230	Finite Element Methods	
MAT 7240	Advanced Partial Differential Equations	
MAT 7400	Advanced Algebra I	
MAT 7410	Advanced Algebra II	
MAT 7500	Topology II	
MAT 7510	Algebraic Topology I	
MAT 7520	Algebraic Topology II	
MAT 7600	Real Analysis I	
MAT 7610	Real Analysis II	
MAT 7700	Advanced Probability Theory I	
STA 7810	Advanced Statistics Theory I	
STA 7820	Advanced Statistics Theory II	

A final oral examination. All students in Plan C are required to take this examination. Students in Plan A or B may, upon recommendation of the thesis or essay adviser, be excused from the final oral examination by the Departmental Graduate Committee.

A public lecture on the thesis or essay for each student in Plan A or Plan B.

By the time twelve credits have been earned, each student must submit a Plan of Work, approved by a departmental adviser, to the director of the program. In the Plan of Work, the student must choose Plan A, Plan B, or Plan C. The Plan of Work must be approved by the Departmental Graduate Committee, at which time the student will be advanced to candidacy. Students are not allowed to take more than twelve credits in the program unless candidacy has been established.

NOTE: Candidates for the Master of Science in Mathematics are exempt from the requirement of the Graduate School that six credits in the major field must be in courses numbered 7000 and above.

NOTE: The following courses cannot be applied towards this degree:

Code	Title	Credits
MAT 5000	Fundamental Concepts of Mathematics and Proof Writing	3
MAT 5070	Elementary Analysis	4
MAT 6130	Discrete Mathematics	3
MAT 6140	Geometry: An Axiomatic Approach	3
MAT 6150	Probability and Statistics for Teachers	4
MAT 6170	Algebra: Ring Theory Through Exploration, Conjecture, and Proof	4
MAT 6180	Algebra: Group Theory Through Exploration, Conjecture, and Proof	3
MAT 6200	Teaching Arithmetic, Algebra and Functions from an Advanced Perspective	3
MAT 6210	Teaching Geometry, Probability and Statistics, and Discrete Mathematics from an Advanced Perspective	3

## Mathematics (M.A.)

*An admissions moratorium is currently in effect for this program.*

The Master of Arts with a Major in Mathematics is offered under the following options:

**Plan A:** Twenty-four credits in course work plus an eight credit thesis.

**Plan B:** Twenty-seven credits in course work plus a three credit essay.

**Plan C:** Thirty credits in course work.

Completion of these plans must satisfy the following criteria:

Code	Title	Credits
At least twenty-four credits of course work from the Department of Mathematics. Credits earned toward a thesis or essay in accordance with Plan A or Plan B may be included among these twenty-four credits.		
MAT 5420	Algebra I (if not previously taken)	4
MAT 5430	Algebra II (if not previously taken)	4
MAT 5600 & MAT 5610	Introduction to Analysis I and Introduction to Analysis II (if not previously taken)	7
MAT 6500	Topology I (if not previously taken)	3

or MAT 6600 Complex Analysis	
Select at least two of the following (if not previously completed): <sup>1</sup>	
MAT 5100	Numerical Methods I
MAT 5220	Partial Differential Equations
MAT 5230	Complex Variables and Applications
MAT 5410	Applied Linear Algebra
MAT 5530	Elementary Differential Geometry and its Applications
MAT 5700	Introduction to Probability Theory
MAT 5770	Mathematical Models in Operations Research
STA 5800	Introduction to Mathematical Statistics
MAT 5870	Methods of Optimization
Election of at least one additional mathematics course numbered 6000, or higher, with the exception of MAT 7999, MAT 8999 and teacher preparation courses.	
Total Credits	
26-30	

<sup>1</sup> These courses represent several areas of applied mathematics.

By the time twelve credits have been earned a Plan of Work, approved by a departmental advisor, should be submitted to the director of the master's program in mathematics. At this time, the Graduate Committee will act on the application for candidacy. The student will not be allowed to take more than twelve credits in the master's program unless candidacy has been established.

In the Plan of Work the student will state his or her choice of one of the plans A, B, or C. The choice of plan must be approved by the Graduate Committee.

There is a final oral examination for the master's degree. All students in Plan C are required to take this examination. Students in Plan A or B may, upon recommendation of the thesis or essay adviser, be excused from the final oral examination by the Graduate Committee.

It is required that the thesis or essay of each student in Plans A or B be presented in a public lecture.

NOTE: Candidates for the Master of Arts degree with a major in mathematics or in mathematical statistics are exempt from the requirement of the Graduate School that six credits in the major field must be in courses numbered 7000 and above.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Mathematical Statistics (M.A.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

The entrance requirements for the master's program in statistics includes successful completion of course work equivalent to the following:

Code	Title	Credits
Calculus sequence:		
MAT 2010	Calculus I	
MAT 2020	Calculus II	
MAT 2030	Calculus III	
MAT 2250	Elementary Linear Algebra	3

MAT 2150 or MAT 2350	Differential Equations and Matrix Algebra Elementary Differential Equations	4
MAT 5070	Elementary Analysis	4
At least 3 more credits in Mathematics at the 5000 level		

Credit accrued in courses such as the history of mathematics or the teaching of mathematics, in which the study of mathematics itself is not the primary purpose will not be counted toward this requirement.

## Program Requirements

The Master of Arts in Mathematical Statistics is offered under the following options:

**Plan A:** Twenty-four credits in course work plus an eight credit thesis in the area of mathematical statistics.

**Plan B:** Twenty-seven credits in course work plus a three credit essay in the area of mathematical statistics.

**Plan C:** Thirty credits in course work.

### Degree Requirements

**Code** **Title** **Credits**

At least twenty-four credits in course work from the Department of Mathematics, including credits earned toward a thesis or essay under Plan A or Plan B options.

Select one of the following (if not previously taken):

MAT 5600 & MAT 5610	Introduction to Analysis I and Introduction to Analysis II	
MAT 7600	Real Analysis I	
STA 5030 & STA 5820	Statistical Computing and Data Analysis and Introduction to Data Science	

Select one of the following (if not previously taken):

MAT 5700 & MAT 5710	Introduction to Probability Theory and Introduction to Stochastic Processes	
MAT 7700	Advanced Probability Theory I	

Select one of the following (if not previously taken):

STA 5800	Introduction to Mathematical Statistics	
STA 7810	Advanced Statistics Theory I	

Select at least three additional courses of the following: <sup>1</sup>

STA 5030	Statistical Computing and Data Analysis	
MAT 5100	Numerical Methods I	
MAT 5110	Numerical Methods II	
MAT 5410	Applied Linear Algebra	
MAT 5420	Algebra I	
MAT 5430	Algebra II	
MAT 5540	Topological Data Analysis	
MAT 5600	Introduction to Analysis I	
MAT 5610	Introduction to Analysis II	
MAT 5710	Introduction to Stochastic Processes	
MAT 5750	Mathematics of Finance	
MAT 5770	Mathematical Models in Operations Research	
STA 5820	Introduction to Data Science	
STA 5830	Applied Time Series	
MAT 5870	Methods of Optimization	
MAT 5890	Special Topics in Mathematics <sup>2</sup>	
MAT 6420	Advanced Linear Algebra	
MAT 6600	Complex Analysis	
STA 6830	Design of Experiments	

STA 6840	Applied Regression Analysis	
MAT 7400	Advanced Algebra I	
MAT 7700	Advanced Probability Theory I	
MAT 7770	Special Topics in Probability	
STA 7810	Advanced Statistics Theory I	
STA 7820	Advanced Statistics Theory II	
STA 7870	Topics in Statistics	

<sup>1</sup> MAT 7700 is recommended. Other courses may be approved by the Departmental Graduate Committee on an individual basis.

<sup>2</sup> Topic has to be related to probability or statistics and needs the approval of the Departmental Graduate Committee.

A final oral examination. All students in Plan C are required to take this examination. Students in Plan A or B may, upon recommendation of the thesis or essay adviser, be excused from the final oral examination by the Departmental Graduate Committee.

A public lecture on the thesis or essay for each student in Plan A or Plan B.

By the time twelve credits have been earned, each student must submit a Plan of Work, approved by a departmental adviser, to the director of the program. In the Plan of Work, the student must choose Plan A, Plan B, or Plan C. The Plan of Work must be approved by the Departmental Graduate Committee, at which time the student will be advanced to candidacy. Students are not allowed to take more than twelve credits in the program unless candidacy has been established.

NOTE: Candidates for the Master of Arts in Mathematical Statistics are exempt from the Graduate School requirement that six credits in the major field must be in courses numbered 7000 and above.

NOTE: The following courses cannot be applied towards this degree:

Code	Title	Credits
MAT 5000	Fundamental Concepts of Mathematics and Proof Writing	3
MAT 5070	Elementary Analysis	4
MAT 6130	Discrete Mathematics	3
MAT 6140	Geometry: An Axiomatic Approach	3
MAT 6150	Probability and Statistics for Teachers	4
MAT 6170	Algebra: Ring Theory Through Exploration, Conjecture, and Proof	4
MAT 6180	Algebra: Group Theory Through Exploration, Conjecture, and Proof	3
MAT 6200	Teaching Arithmetic, Algebra and Functions from an Advanced Perspective	3
MAT 6210	Teaching Geometry, Probability and Statistics, and Discrete Mathematics from an Advanced Perspective	3

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Applied Mathematics (M.A.)

This degree is designed for students who are interested in applied mathematics or are interested in applying mathematics to areas outside of mathematics (e.g., biology, chemistry, computer science, economics, engineering, geology, medical science, physics, psychology, social science). The program is flexible in that it does not represent the



teaching of any fixed body of knowledge. It does require two areas of concentration, one of these being the major in mathematics (pure and applied) with emphasis on the applicable subjects. The minor area is to be either in applied mathematics or in an area outside of mathematics (such as the above) to which the student is interested in applying mathematics. Mathematical methods are emphasized.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

Applicants for the Master of Arts in Applied Mathematics should have a good background in the area in which they are planning to apply mathematics, but a bachelor's degree in mathematics is not required. Applicants must have successfully completed course work equivalent to the following:

Code	Title	Credits
MAT 2010 & MAT 2020 & MAT 2030	Calculus I and Calculus II and Calculus III	12
MAT 2250	Elementary Linear Algebra	3
MAT 2150 or MAT 2350	Differential Equations and Matrix Algebra Elementary Differential Equations	3-4
MAT 5070	Elementary Analysis	4

At least 3 more credits in Mathematics at the 5000 level.

Credit accrued in courses such as the history of mathematics or the teaching of mathematics, in which the study of mathematics itself is not the primary purpose will not be counted toward this requirement.

## Program Requirements

This program is usually offered as a Plan B master's degree option requiring twenty-nine credits of course work plus a three credit essay. However, Plan A (master's thesis) and Plan C (course work only) options are available with the approval of the Departmental Graduate Committee.

1. A minimum of thirty-two credits.
2. A minimum of twenty credits in mathematics courses not previously completed from the following list (additional courses may be approved on an individual basis):

Code	Title	Credits
MAT 5100	Numerical Methods I	3
MAT 5110	Numerical Methods II	3
MAT 5210	Advanced Calculus	4
MAT 5220	Partial Differential Equations	4
MAT 5230	Complex Variables and Applications	4
MAT 5280	Methods of Differential Equations	3
MAT 5350	Logical Systems I	4
MAT 5400	Elementary Theory of Numbers	3
MAT 5410	Applied Linear Algebra	4
MAT 5420	Algebra I	4
MAT 5430	Algebra II	4
MAT 5520	Introduction to Topology	3
MAT 5530	Elementary Differential Geometry and its Applications	3
MAT 5600	Introduction to Analysis I	4
MAT 5610	Introduction to Analysis II	3
MAT 5700	Introduction to Probability Theory	4
MAT 5710	Introduction to Stochastic Processes	3

MAT 5740	The Theory of Interest	3
MAT 5770	Mathematical Models in Operations Research	3
STA 5800	Introduction to Mathematical Statistics	4
MAT 5870	Methods of Optimization	3
MAT 6420	Advanced Linear Algebra	3
MAT 6500	Topology I	3
MAT 6600	Complex Analysis	2-4
STA 6830	Design of Experiments	3
MAT 7200	Ordinary Differential Equations	3
MAT 7210	Partial Differential Equations	3
MAT 7230	Finite Element Methods	3
MAT 7240	Advanced Partial Differential Equations	3
MAT 7400	Advanced Algebra I	3
MAT 7410	Advanced Algebra II	3
MAT 7500	Topology II	3
MAT 7510	Algebraic Topology I	3
MAT 7520	Algebraic Topology II	3
MAT 7600	Real Analysis I	3
MAT 7610	Real Analysis II	3
MAT 7700	Advanced Probability Theory I	3
STA 7810	Advanced Statistics Theory I	3
STA 5030	Statistical Computing and Data Analysis	3
STA 5830	Applied Time Series	3
STA 6840	Applied Regression Analysis	3
STA 7820	Advanced Statistics Theory II	3

3. A minimum of eight additional credits in the student's declared minor area.
4. A final oral examination. All students in Plan C are required to take this examination. Students in Plan A or Plan B may, upon recommendation of the thesis or essay advisor, be excused from the final oral examination by the Departmental Graduate Committee.
5. A public lecture on the thesis or essay for each student in Plan A or Plan B.
6. By the time twelve credits have been earned, each student must submit a Plan of Work, approved by a departmental advisor, to the director of the program. In the Plan of Work, the student must choose Plan A, Plan B, or Plan C. The Plan of Work must be approved by the Departmental Graduate Committee, at which time the student will be advanced to candidacy. Students are not allowed to take more than twelve credits in the program unless candidacy has been established.

Each student in this program is ordinarily required to write a project-type essay for three credits under the direction of a supervisor in the Department of Mathematics and an essay advisor from some department related to the minor area, both of whom must approve the essay. (If the chosen minor area is in applied mathematics, the adviser in the major area can be the same as the adviser in the minor area.) The selection of advisors and topics must be approved by the Departmental Graduate Committee.

NOTE: The following courses cannot be applied towards this degree:

Code	Title	Credits
MAT 5000	Fundamental Concepts of Mathematics and Proof Writing	3
MAT 5070	Elementary Analysis	4

The following courses can only be applied towards requirement three for the minor in education:

Code	Title	Credits
MAT 6130	Discrete Mathematics	3
MAT 6140	Geometry: An Axiomatic Approach	3
MAT 6150	Probability and Statistics for Teachers	4
MAT 6170	Algebra: Ring Theory Through Exploration, Conjecture, and Proof	4
MAT 6180	Algebra: Group Theory Through Exploration, Conjecture, and Proof	3
MAT 6200	Teaching Arithmetic, Algebra and Functions from an Advanced Perspective	3
MAT 6210	Teaching Geometry, Probability and Statistics, and Discrete Mathematics from an Advanced Perspective	3

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

# Statistics (M.S. in Data Science and Business Analytics)

The Master of Science in Data Science and Business Analytics program is designed to give graduates a core of computing, business, statistics, and operations research skills to identify, analyze, and solve analytics problems; to integrate those skills in an interdisciplinary way that other, single-discipline-oriented analytics degree might not; and to provide in-depth training in an analytics area of specialization. The Statistics major is designed to meet demand in industry for talent with solid statistical foundations.

## Admission Requirements

Applicants must meet requirements for admission to the Graduate School (p. 21). Additional admission requirements include:

- GPA of 3.0 or better
- English language proficiency passing test scores (for international applicants)
- Multivariate calculus course (equivalent to MAT 2030)
- One linear algebra course (equivalent to MAT 2250)
- One basic statistics course (equivalent to STA 2210, MAT 6150 or DSE 5070)
- One programming course (equivalent to CSC 1100 or higher or DSE 5070)

Students who have not completed the above courses can be admitted but have to complete corresponding courses before starting the program.

## Program Requirements

Completion of the Master of Science in Data Science and Business Analytics with a major in Statistics requires a minimum of 30 credits. Courses cannot be double-counted even if listed in multiple modules. Coursework includes:

Code	Title	Credits
<b>Module I: Core Courses</b>		
The following 3 courses (9 credits) are required.		
DSB 6000	Data Science Strategy & Leadership	
DSE 6000	Computing Platforms for Data Science	
STA 5030	Statistical Computing and Data Analysis	
<b>Module II: Major Courses</b>		

Students have to finish following courses (11 credits) if they have not completed the courses before admission.

MAT 5700	Introduction to Probability Theory
STA 5800	Introduction to Mathematical Statistics
STA 5820	Introduction to Data Science or CSC 5825 Introduction to Machine Learning and Applications

If any of the above courses were completed before admission to the program, students must complete three courses (9 credits) in Module II. Students can choose from any of the following courses.

STA 7810	Advanced Statistics Theory I
STA 7820	Advanced Statistics Theory II
DSA 6100	Statistical Learning for Data Science and Analytics
DSA 6200	Operations Research or MAT 5770Mathematical Models in Operations Research
DSE 6200	Modern Databases
CSC 7825	Machine Learning

### Module III: Elective Courses

Students are required to select 4-6 credits from the following list. The number of credits will be based on coursework completed for Module II.

Statistics Courses	
STA 5830	Applied Time Series
STA 6830	Design of Experiments
STA 6840	Applied Regression Analysis
STA 7810	Advanced Statistics Theory I
STA 7820	Advanced Statistics Theory II
STA 7870	Topics in Statistics
Probability Courses	
MAT 5710	Introduction to Stochastic Processes
MAT 5750	Mathematics of Finance
MAT 7770	Special Topics in Probability
Mathematics Courses	
MAT 5070	Elementary Analysis
MAT 5100	Numerical Methods I
MAT 5110	Numerical Methods II
MAT 5410	Applied Linear Algebra
MAT 5600	Introduction to Analysis I
MAT 5610	Introduction to Analysis II
MAT 5770	Mathematical Models in Operations Research
MAT 5870	Methods of Optimization
MAT 5890	Special Topics in Mathematics
MAT 6420	Advanced Linear Algebra
MAT 6990	Internship in Mathematical Sciences
Computer Science Courses	
CSC 5800	Intelligent Systems: Algorithms and Tools
CSC 6220	Parallel Computing I: Programming
CSC 6710	Database Management Systems I
CSC 6800	Artificial Intelligence I
CSC 7220	Parallel Computing II: Algorithms and Applications
CSC 7300 & CSC 7301	Bioinformatics I: Biological Databases and Data Analysis and Bioinformatics I: Programming Lab
CSC 7410	Bioinformatics II
CSC 7710	Database Management Systems II
CSC 7800	Artificial Intelligence II

CSC 7810/ IE 7811	Data Mining: Algorithms and Applications
CSC 7825	Machine Learning
Industrial Engineering Courses	
IE 7220	Advanced Statistical Methods
IE 7710	Stochastic Processes
IE 7860	Intelligent Analytics
Economics Courses	
ECO 7110	Econometrics II
ECO 7120	Econometrics III
Data Science Courses	
DSA 6200	Operations Research
DSA 6300	Decision Analysis and Simulation
DSE 6200	Modern Databases
Technology and Information Systems Analysis Courses	
TIS 7570	Advanced Business Analytics

#### Module IV: Practicum

Select 6 credits from the following:

STA 5830	Applied Time Series
STA 6830	Design of Experiments
STA 6840	Applied Regression Analysis
STA 7800	Data Science and Analytics Practicum
MAT 7999	Master's Essay Direction
IE 7860	Intelligent Analytics

**Academic Scholarship:** All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (<https://bulletins.wayne.edu/graduate/college-liberal-arts-sciences/academic-regulations/>). Students may enroll on a full-time or part-time basis but must complete requirements within six years of admission.

## Mathematics (Ph.D.)

Admission to this program is contingent upon admission to the Graduate School (p. 21). Doctoral applicants must have completed a master's degree in mathematics or reached an equivalent level of advancement. The Department Graduate Committee may make exceptions to this rule in cases where unusual ability has been demonstrated. Admission to the doctoral program will be granted only to those whose records indicate an ability to succeed in advanced study and research. Applicants are admitted for the fall term only. All applications require a statement of purpose and three letters of recommendation. View the Mathematics Department website (<https://clas.wayne.edu/math/admissions/>) for additional admissions information.

All applicants for the degree of Doctor of Philosophy with a major in mathematics are urged first to study the general doctoral degree requirements (p. ) and to plan their programs so that all those requirements are fulfilled in the proper order and at the proper times. On the next tab are the major steps in earning this degree. Specific requirements of the Mathematics Department are included.

Candidates for the doctoral degree must complete ninety credits in course work beyond the bachelor's degree, including thirty credits of dissertation direction. Specific requirements for this degree in mathematics are as follows:

**Qualifying Examinations:** These are two-hour written examinations covering undergraduate level material from a sophisticated point of view.

Students are required to pass a qualifying exam in Algebra or Analysis, as well as one additional exam from the following four choices:

- Algebra
- Analysis
- Applied Mathematics
- Probability and Statistics

Students may choose to take exams in any of their first three semesters in the Ph.D. program, in which case they must have passed both exams by the end of the following semester (this allows for at most one retake of a failed exam). Students must select their exam areas at the beginning of each semester. If a first semester student wishes to take the Qualifying exams during their first semester, they must select their exam areas before the beginning of the first semester.

Under special circumstances, the Departmental Graduate Committee may approve petitions on an individual basis for exceptions to these rules. In the possible exceptions, every student still needs to fulfill the requirements by the end of the second year in the Ph.D. program.

**Course Requirements:** Before advancement to candidacy: every student in the Ph.D. program must show competency in five core areas of mathematics (Algebra, Analysis, Applied Mathematics, Probability/Statistics, and Topology) by both passing two Qualifying Examinations as explained above, and by earning a grade of 'B' or better in one course in each of the three subject areas in which they do not take a Qualifying Examination. The courses may be selected from the following choices:

Code	Title	Credits
MAT 7400	Advanced Algebra I (Subject: Algebra)	3
MAT 7600	Real Analysis I (Subject: Analysis)	3
MAT 7200	Ordinary Differential Equations (Subject: Applied Mathematics)	3
or MAT 7210	Partial Differential Equations	
MAT 7700	Advanced Probability Theory I (Subject: Probability and Statistics)	3
or STA 7810	Advanced Statistics Theory I	
MAT 7500	Topology II (Subject: Topology)	3
or MAT 7510	Algebraic Topology I	

As a general rule, students are expected to take at least one required course each semester until they fulfill their course requirements. Under special circumstances, the Departmental Graduate Committee may approve petitions on an individual basis for exceptions to these rules.

**Dissertation Prospectus:** PhD students are required to give a presentation to their thesis committee no later than three and a half years into their PhD program. The presentation should include the student's thesis project and any progress up to date. The advisor and the thesis committee should make a decision whether the student should move forward to her/his thesis project or is not ready for the thesis project. The decision and any other feedback should be sent back to the student in a timely manner. In the case the thesis committee believes the student is not ready for the thesis project, it may advise the student to leave the Ph.D. program or to make a second try. In the case the student is advised to make a second try, the second chance should take place by the end of the fourth year into the student's PhD program.

**Dissertation:** The thirty-credit dissertation registration requirement is fulfilled by registering for the courses MAT 9991, MAT 9992, MAT 9993, and MAT 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

**Defense of Dissertation:** Candidates must pass a final oral examination covering their research after the candidate's advisor has approved the completed dissertation.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

# Nutrition and Food Science

Office: 3009 Science Hall; 313-577-2500  
Chairperson: Ahmad R. Heydari  
<https://clas.wayne.edu/nfs> (<https://clas.wayne.edu/nfs/>)

- Dietetics (M.S.) (p. 280)
- Nutrition and Food Science (M.A.) (p. 281)
- Nutrition and Food Science (M.S.) (p. 281)
- Nutrition and Food Science and Public Health (M.A./M.P.H. Joint Degree) (p. 281)
- Nutrition and Food Science (Ph.D.) (p. 282)

## Dietetics (M.S.)

### Admissions Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21) and a separate application to the Coordinated Program in Dietetics. Successful applicants shall have a minimum grade point average of 3.3. Undergraduate preparation must include required courses as follows: introductory and organic chemistry, anatomy and physiology, microbiology, human nutrition, food science, macro- and micronutrient metabolism, psychology, statistics, and introduction to management (all must be within a five-year recency of application). The Graduate Record Examination is recommended.

### Program Requirements

The Master of Science in Dietetics requires 34 credits of coursework.

Required competencies must be achieved upon program completion as mandated by the Accreditation Council for Education in Nutrition and Dietetics (ACEND); therefore, coursework is based on fulfilling those competencies and the program curriculum is set and sequential, with no elective courses offered. All coursework must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

Code	Title	Credits
NFS 5100	Nutrition Care Process I	2
NFS 5120	Nutrition Care Process II	2
NFS 5200	Advanced Dietetics	3
NFS 5220	Community Nutrition	2
NFS 5250	Nutrition and Disease	4
NFS 5350	Organization and Management of Food Service Systems	4
NFS 5360	Management of Nutritional Care and Services	3
NFS 5510	Supervised Practice I	1
NFS 5520	Supervised Practice II	1
NFS 5540	Supervised Practice IV	1
NFS 5530	Supervised Practice III	1
NFS 6860	Controversial Issues in Clinical Nutrition and Dietetics	2
NFS 7060	Research Problems in Nutrition and Food Science	2
NFS 7240	Nutritional Epidemiology	3
NFS 7800	Master's Capstone Seminar in Dietetics	3
Total Credits		34

# Nutrition and Food Science (M.A.)

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Successful applicants shall have a minimum grade point average of 3.0. Undergraduate preparation should include basic courses in nutrition and food science. Persons lacking a limited number of prerequisites may be admitted conditionally, contingent upon completion of certain courses specified by the graduate committee. The Graduate Record Exam is recommended.

## Program Requirements

This degree is offered only as a Plan B master's program requiring thirty-two credits, including a three-credit essay. The concentration in food service management includes courses in the School of Business Administration. Contact the Department for information on applicable courses. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

Code	Title	Credits
NFS 6000	Nutritional Biochemistry	3
Select at least three of the following:		9
NFS 6020	Nutrient and Gene Interaction	
NFS 6030	Microbiological Safety of Foods	
NFS 6230	Nutrition and Physical Performance	
NFS 7000	Nutritional Metabolomics and Bioinformatics	
NFS 7240	Nutritional Epidemiology	
Elective Courses (minimum necessary to meet degree requirements)		17
NFS 7999	Master's Essay Direction	3
Total Credits		32

# Nutrition and Food Science (M.S.)

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Successful applicants shall have a minimum grade point average of 3.0. Undergraduate preparation should include basic courses in nutrition and food science. One year of introductory chemistry, and at least one semester each of organic chemistry, anatomy and physiology are required; biochemistry and statistics are recommended. Persons lacking a limited number of prerequisites may be admitted conditionally, contingent upon completion of certain courses specified by the graduate committee. The Graduate Record Examination is recommended.

## Requirements – Traditional Program

This degree is offered only as a Plan A master's program requiring thirty-two credits, including an eight-credit thesis based on completion of research study, and eight credits of laboratory course work. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

Code	Title	Credits
NFS 6000	Nutritional Biochemistry	3
Select at least three of the following:		9
NFS 6020	Nutrient and Gene Interaction	
NFS 6030	Microbiological Safety of Foods	
NFS 6230	Nutrition and Physical Performance	
NFS 7000	Nutritional Metabolomics and Bioinformatics	

NFS 7240	Nutritional Epidemiology	
M.S. Laboratory Requirements:		6
NFS 7060	Research Problems in Nutrition and Food Science	
NFS 7140	Advanced Laboratory Techniques in Nutrition and Food Science	
Elective Courses (minimum necessary to meet degree requirements)		6
NFS 8999	Master's Thesis Research and Direction	8
Total Credits		32

## Requirements – Online Program

The online Master of Science in Nutrition and Food Science requires the completion of thirty-two credits. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

Code	Title	Credits
NFS 6000	Nutritional Biochemistry	3
NFS 6150	Functional Foods for Health	3
NFS 6020	Nutrient and Gene Interaction	3
NFS 6030	Microbiological Safety of Foods	3
NFS 6850	Controversial Issues	2
NFS 7060	Research Problems in Nutrition and Food Science	2
NFS 7170	Nutrition, Physical Activity, and the Brain	3
NFS 7230	Nutrition and Physical Performance	3
NFS 7240	Nutritional Epidemiology	3
NFS 7800	Master's Capstone Seminar in Dietetics	3
NFS 7850	Graduate Seminar	1
NFS 6270	Eating Behavior and Body Weight Regulation	3

Students enrolled in a dietetic internship that is accredited by the Accreditation Council for Education in Nutrition and Dietetics may receive 4 credits towards their 32-credit total. A signed Verification Statement from the dietetic internship must be submitted as proof of completion before credits are awarded, and students must complete all of the remaining 28 credits for the degree at WSU.

Total Credits	32
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# Nutrition and Food Science and Public Health (M.A./M.P.H. Joint Degree)

The M.A. in Nutrition and Food Science/M.P.H. is a joint degree program offered by the Department of Nutrition and Food Science, College of Liberal Arts and Sciences, and Department of Family Medicine and Public Health Sciences, School of Medicine.

Students must meet the admission and graduation requirements of both programs and enroll concurrently in the two programs during most of the period in which they are earning the degrees. If they complete requirements for only one degree, one degree will be awarded.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission criteria for the MA-MPH Joint Degree will meet the requirements of both MA and MPH degrees by requiring:

1. A minimum undergraduate Grade Point Average of 3.0 and all requirements for admission to the WSU Graduate School that include satisfying the English proficiency requirements. If applicants have not completed a baccalaureate degree from an accredited institution



in the US or in a country where English is the native language, satisfactory attainment of scores in the Michigan English Language Assessment Battery (MELAB) (85), the Test of English as a Foreign Language (TOEFL) (79 internet-/550 paper-based), or the International English Language Testing System (IELTS) (6.5) will be required. Tests should not be more than 2 years old. The MPH Program has established a minimum TOEFL score of 90 and a minimum IELTS score of 7.

- Standardized Test Scores: GRE, MCAT, GMAT or LSAT within the last five years.
- The submission of a professional curriculum vitae together with a satisfactory personal statement indicating the applicant's background, research and/or work experience, interests, and career goals as they relate to attainment of the MA-MPH degree. Three letters recommendation will also be required. An interview may be conducted.
- Completion of college-based courses in mathematics and the social sciences, and completion of the following undergraduate courses or equivalent:

Code	Title	Credits
NFS 2130 & NFS 2140	Introductory Food Science and Introductory Food Science Laboratory	4
NFS 2220	Nutrition Laboratory	1
NFS 3230	Human Nutrition	3-4
BIO 2270 & BIO 2271	Principles of Microbiology and Principles of Microbiology Lab	5
BIO 2870	Anatomy and Physiology	5
One semester of Organic Chemistry		
Courses in biochemistry and statistics are recommended		

## Program Requirements

A minimum of 64 graduate credits beyond the baccalaureate degree is required for completion of the MA-MPH program. Students enrolled in the MA-MPH Joint Degree Program will be required to take specific NFS (p. ) and FPH (p. ) listed public health-related courses. A total of 10 credits can be double-counted towards completion of this joint degree program. All course work must be completed in accordance with the regulations of the Graduate School (p. 24), the College of Liberal Arts and Sciences (p. 234) and the School of Medicine (p. 313).

## M.A. in Nutrition and Food Science

Code	Title	Credits
<b>Core Courses</b>		
NFS 7850	Graduate Seminar	1
NFS 6000	Nutritional Biochemistry	3
NFS 6030	Microbiological Safety of Foods	3
Select two of the following:		6
NFS 6020	Nutrient and Gene Interaction	
NFS 7000	Nutritional Metabolomics and Bioinformatics	
NFS 7230	Nutrition and Physical Performance	
<b>Major M.A-M.P.H. Specific Courses</b>		
NFS 5220	Community Nutrition	2
NFS 6210	Nutrition through the Life Cycle	3
FPH 7240	Epidemiology	3
NFS 7240	Nutritional Epidemiology	3
<b>Required Culminating Course</b>		
FPH 8991	Integrated Learning Experience	3
<b>Minor Elective Courses</b>		

Select a minimum of five credits of the following:		5
NFS 5250	Nutrition and Disease	
NFS 6270	Eating Behavior and Body Weight Regulation	
NFS 6850	Controversial Issues	
NFS 7990	Directed Study	
FPH 7020	Biostatistics II	
FPH 7350	Advanced Statistical Programming (SAS)	
FPH 7990	Directed Studies in Community Health Services	
CB 7430	Cancer Epidemiology	
EER 7650	Computer Use in Research	
<b>Total Credits</b>		<b>32</b>

## Master of Public Health

Code	Title	Credits
<b>Core Courses</b>		
FPH 7011	Foundations of Public Health	3
FPH 7012	Social Justice in Public Health	3
FPH 7015	Biostatistics I	3
FPH 7100	Health Care Organization and Administration	3
FPH 7210	Research Methods for Public Health Professionals	3
FPH 7240	Epidemiology	3
FPH 7300	Public Health Policy	3
<b>Concentration Courses</b>		
FPH 7230	Health Program Evaluation	3
FPH 7430	Application of Public Health Principles	3
FPH 7510	Leadership and Population Health	2
FPH 7511	Health Promotion Messaging and Advocacy	3
<b>Electives</b>		
Select a minimum of four credits of NFS courses.		4
<b>Required Culminating Courses</b>		
FPH 7440	Applied Practice Experience	3
FPH 8991	Integrated Learning Experience	3
<b>Total Credits</b>		<b>42</b>

## Nutrition and Food Science (Ph.D.)

Admission to this program is contingent upon admission to the Graduate School (p. 21). A completed Master's degree in a health/science related filed is recommended. A minimum grade point average of 3.0 and the Graduate Record Examination is option, but recommended. Three letters of reference must be submitted, along with a statement of the applicant's goals and career objectives, and an interview will be conducted with applicants, whenever feasible. Students with a master's degree in nutrition, food science, or related disciplines will have their transcripts evaluated to determine which courses meet the Ph.D. course requirements.

A minimum of ninety graduate credits beyond the baccalaureate is required for completion of the Ph.D. program, distributed as follows:

- At least thirty credits in Nutrition and Food Science. Twenty-two of these credits are required for all students, and eight credits are selected to fill student needs and interests.
- Additional courses from other basic science departments including at least one 7000-level course in biochemistry and one graduate course in statistics.
- Eight credits must be completed outside the Department to form a minor. A list of required and elective courses for doctoral studies is available from the Department Office.

4. Thirty credits in dissertation research, involving independent research under the direction of a faculty member in the Department. The thirty credit dissertation registration requirement is fulfilled by registering for the courses NFS 9991, NFS 9992, NFS 9993, and NFS 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.
5. Submission of a satisfactory research dissertation.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Peace and Conflict Studies

*Office:* 2320 Faculty/Administration Building; 313-577-3453

*Director:* Pontus Leander

<https://clas.wayne.edu/cpcs> (<https://clas.wayne.edu/cpcs/>)

- Peace and Security Studies (Graduate Certificate) (p. 283)

## Peace and Security Studies (Graduate Certificate)

The surge of violent disputes, civil disruption, military campaigns, human rights controversies and security concerns worldwide has led to new emphasis on constructive intervention and positive solutions to violent human confrontations. Concern about ethnic tensions, terrorism, border conflict, immigration, weapons flows, alternate security perspectives and violence at home and abroad create a great need for understanding the circumstances and means by which peace is threatened, reinforced, and preserved. On the inter-personal level, issues of abuse, violence and incivility also must be addressed.

Many of these topics now characterize job and career opportunities in a variety of fields. The Graduate Certificate in Peace and Security Studies (GCPSS), offered by the WSU Center for Peace and Conflict Studies, represents a unique added credential, with emphasis on prevention of violence, peaceful borders and social boundaries, for students undertaking Master's level study or who have completed an accredited graduate degree and are looking forward to work in such areas as social service, diplomacy, education, public service, theology, security management and law enforcement.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). The GCPSS program is open to students who have been admitted to or completed an accredited Master's degree program in an appropriate discipline at Wayne State University or at another university in this region or Canada. Applicants who have completed a Master's at a non-North American university will be required to submit two letters of academic recommendation, a writing sample, a personal statement indicating the reasons for pursuing the GCPSS, along with evidence, as appropriate, of English proficiency (e.g., TOEFL score). The Director of the Center for Peace and Conflict Studies is the program advisor.

## Program Requirements

The GCPSS requires a minimum completion of fifteen credits in peace and security related courses. Up to nine Certificate credits may be applied toward the requirements of a graduate degree.

Two core courses in Peace and Security Studies are required, along with completion for credit of a community based practicum (applied research) or internship (professional training) experience. An additional six elective credits are to be selected from existing courses in a variety of disciplines; one of these courses may come from the student's home Master's major. Students in the program will be required to maintain at least a 3.0 g.p.a. in Peace and Security studies core and elective courses. Graduate School time limitations on completion of degree or certificate requirements and regulations on the transfer of credits from other programs will apply. The GCPSS is awarded upon completion of the student's M.A./M.S./M.S.W./M.B.A. (or equivalent degree) requirements along with certificate requirements.

Code	Title	Credits
<b>Core Requirements</b>		
PCS/PS 6100	Introduction to Graduate Peace and Security Studies	3
PCS 7100	Peace Making: Regional, Technological, Transnational Perspectives	3
PCS 7800 <sup>1</sup>	Graduate Practicum in Peace and Security Studies	3
<b>Electives</b>		
Select six credits of the following: <sup>2</sup>		6
Culture, Diversity and Identity		
ANT 6290	Culture Area Studies	
COM 6350	Communication, Culture, and Conflict	
DR 6120	Human Diversity and Human Conflict	
ECO 6415	Advanced Economics of Race and Gender	
NE 7100	Islam and the West	
PS 5740	Ethnicity: The Immigrant Experience	
Violence and Enforcement		
HIS 5530/7530	History of World War I and II: A Social and Political History of Two World Wars	
PS 6830	Civil War and Conflict Processes	
PS 7810	Seminar in World Politics	
Equity and Justice		
ECO 5490/ HIS 5290	American Labor History	
PHI 5270	Philosophy of Law	
PHI 5280	History of Ethics	
PS 5820	International Law	
PS 5850	Human Rights	
SOC 5700	Seminar in Social Inequality	
<b>Total Credits</b>		<b>15</b>

survey the students to determine ways in which course material was or was not utilized in career and everyday life experiences.

<sup>1</sup> Students in PCS 7800 may undertake fieldwork either in the form of an original applied research project or internship placement in a relevant international or community agency in the Windsor-Detroit areas or abroad, dealing with issues of political or group violence or reconciliation, immigration or with border management. Internship placement may not be paid or be in the student's own place of employment and may not coincide directly with any other internship or practicum in the student's graduate program. The experience must result in a supervisor evaluation and substantial written analysis by the student. PCS 7800 is offered each semester (supervised by members of the PCS Faculty Committee) and should be taken after completing PCS 6100 and PCS 7100.

<sup>2</sup> Additional graduate courses related specifically to peace and/or security areas that could satisfy the elective sequence requirement are listed below. Students may petition for acceptance of alternate relevant electives.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Assessment:** Upon completion of their certificate requirements each student is required to submit a small portfolio of what they consider to be their best work in the program, which will be reviewed as a way of evaluating the program itself. Core course instructors in the program also report on the extent to which assessment goals were reached and will

# Philosophy

Office: 5057 Woodward, 12th floor; 313-577-2475  
Chairperson: Josh Wilburn  
Website: <https://clas.wayne.edu/philosophy> (<https://clas.wayne.edu/philosophy/>)  
Contact: [philosophy@wayne.edu](mailto:philosophy@wayne.edu)

- Philosophy (M.A.) (p. 285)
- Philosophy (Ph.D.) (p. 285)
- Health Care Ethics (Graduate Certificate) (p. 285)

## Philosophy (M.A.)

Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission requires approval by the admissions officer of the Department. Prerequisites should include courses in logic, value theory, and the history of philosophy. The Graduate Record Examination is required if the student's undergraduate grade point average is below 2.75 for a degree awarded by an accredited institution, or below 3.0 for a degree awarded by a non-accredited institution.

The master's degree is offered by this department under the following options:

**Plan A:** Twenty-four credits in course work, including at least two graduate seminars at the 7000-level in philosophy, plus an eight-credit master's thesis.

**Plan B:** Twenty-eight credits in course work, including at least two graduate seminars at the 7000-level in philosophy, plus a four-credit master's essay.

**Plan C:** (open only to prospective doctoral candidates registered in the Ph.D. program) Thirty-two credits of course work, including at least two graduate seminars at the 7000-level in philosophy, plus satisfaction of all Ph.D. logic and preliminary essay requirements.

**Candidacy** must be established by the time twelve credits have been earned. All students in the master's program must pass the Departmental examinations in elementary logic before the second year of study.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Philosophy (Ph.D.)

Admission to this program is contingent upon admission to the Graduate School (p. 21).

Candidates for the doctoral degree must complete ninety credits beyond the baccalaureate degree, including thirty credits of dissertation directed study. In order to continue in the program and gain admission to candidacy, a student must satisfy the following:

1. Pass PHI 5050 or the Departmental Examination in elementary logic before the second year in the doctoral program;
2. Complete the Departmental Advanced Logic Requirements by the end of the fourth year;
3. Satisfy the course requirements in metaphysics/epistemology, value theory, and history of philosophy by the end of the fourth year;
4. Complete the two preliminary essays by the beginning of the fourth year; and
5. Pass an oral examination on the dissertation prospectus, by the fifth year;

The thirty credit dissertation registration requirement is fulfilled by registering for PHI 9991, PHI 9992, PHI 9993, and PHI 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. The candidate's doctoral committee must approve the doctoral dissertation prior to an oral presentation open to all interested faculty and students.

Before receiving a Ph.D., the student must give some classroom lectures under the supervision of the faculty of the Philosophy Department.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Health Care Ethics (Graduate Certificate)

The Graduate Certificate in Health Care Ethics provides grounding in the essentials of bioethical reasoning and practice, including its application to issues in the domains of medicine, law, and public policy. Online course offerings help participants further existing career and education plans, facilitate changes in career and education plans, or help choose suitable careers, as well as further personal development.

**Admission requirements:** Admission to the certificate program is contingent upon admission to the Graduate School (p. 21).

1. Applicants are required to have an undergraduate or graduate degree (with at least a 3.0 GPA) in a field allied with health, law, or philosophy. Applicants are required to submit transcripts of such work.
2. Applicants are required to submit a personal statement describing their reasons for pursuing the certificate as well as career plans or goals.

Students in the Certificate Program must complete four courses for 16 credits total from the following list of courses.

Code	Title	Credits
PHI 5250	Justice and Rights in Health Care *	4
PHI 5280	History of Ethics	4
PHI 5290	Free Will and Moral Responsibility	4
PHI 5300	Foundations of Ethics	4
PHI 5330	Ethics, Law, and Health *	4
PHI 6999	Certificate Essay Direction **	1-4

- \* Students must complete at least one of PHI 5250 or PHI 5330. Students may include both courses as part of the overall requirements.
- \*\* The Certificate Essay course, PHI 6999, is available only after completing at least two other courses from the list.

Students must complete the 4 courses in a maximum of 3 calendar years and with an overall GPA of 3.0 or better. Courses in which students receive grades of C or lower will not count toward the certificate. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

# Physics and Astronomy

Office: 135 Physics Research Building; 313-577-2721  
Chairperson: Ed Cackett  
<https://clas.wayne.edu/physics/> (<http://www.clas.wayne.edu/physics/>)

Physics is the science that describes the behavior of the physical world. It is the most basic of all sciences and as such is responsible for the interpretation of fundamental physical processes which support many other scientific disciplines.

The degree programs of this department are designed to provide students with the broad-based knowledge and problem-solving skills that are needed in order to be productive physicists in an academic, government, or industrial environment. The programs can accommodate students with varying undergraduate backgrounds and are designed to provide maximum flexibility for individual students. At the doctoral level, specializations are offered in the areas of: elementary particle physics, nuclear physics, condensed matter physics, atomic physics, materials science, optics, biophysics, and quantum field theory.

Faculty members are committed to excellence in research and teaching, and work in an open and informal atmosphere which allows effective communication between students and advisors. The faculty hold national and international reputations in their areas of specialization. They organize and participate in conferences, publish extensively, and receive numerous outside grants, contracts and fellowships. In addition, they engage in many collaborations with scientists in both foreign and American universities and national laboratories. The department is housed in a modern physics building containing well-equipped research laboratories.

- Physics (M.A.) (p. 286)
- Physics (M.S.) (p. 286)
- Physics (Ph.D.) (p. 288)

## Physics (M.A.)

For some students, the master's degree will be used as part of a continuing Ph.D. program; for others, it will be a terminal degree leading to employment in government laboratories, industrial programs, hospitals, teaching positions, and other occupations. The Master of Arts with a major in Physics is offered under Plan B, as described on the next tab.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants must satisfy the following criteria.

### Prerequisite Preparation

Prerequisite preparation should include:

Code	Title	Credits
A minimum of general college physics with laboratory equivalent to:		
PHY 2170	University Physics for Scientists I	
PHY 2180	University Physics for Scientists II	
PHY 3300	Introductory Modern Physics	

Fifteen credits in intermediate physics courses, for example, those equivalent to the following:

PHY 5100	Methods of Theoretical Physics I
PHY 5200	Classical Mechanics I
PHY 5210	Classical Mechanics II
PHY 5340	Optics

PHY 6400	Quantum Physics I
PHY 6410	Quantum Physics II
PHY 6500	Thermodynamics and Statistical Physics
PHY 6600	Electromagnetic Fields I
PHY 6610	Electromagnetic Fields II
PHY 6850	Modern Physics Laboratory

Mathematics equivalent to mathematics prerequisites required in those physics courses

A minimum of general college chemistry with laboratory equivalent to:

CHM 1100 & CHM 1130	General Chemistry I and General Chemistry I Laboratory
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The Graduate Record Examination, both the General section and the Physics subject test, is strongly recommended as a counseling aid in preparing the student's plan of study.

## Program Requirements

The Master of Arts degree is offered by this Department only under the following option:

**Plan B:** *Twenty-nine credits in course work plus a three-credit essay.*

1. The following physics courses or their equivalents must be completed or must have been completed previously at the undergraduate level.

Code	Title	Credits
PHY 5100	Methods of Theoretical Physics I	3
PHY 5210	Classical Mechanics II	3
PHY 6400	Quantum Physics I	4
PHY 6410	Quantum Physics II	3
PHY 6500	Thermodynamics and Statistical Physics	4
PHY 6600	Electromagnetic Fields I	4
PHY 6610	Electromagnetic Fields II	3
2. Mathematics equivalent to mathematics prerequisites required for the course work listed above.
3. At least nine credits of coursework in physics at the 7000-level or above (exclusive of PHY 7990, PHY 7996, PHY 7999, PHY 8995, PHY 8999).
4. PHY 7999 Master's Essay Direction.
5. A departmental final oral examination is required of all candidates.

## Physics (M.S.)

For some students, the master's degree will be used as part of a continuing Ph.D. program; for others, it will be a terminal degree leading to employment in government laboratories, industrial programs, hospitals, teaching positions, and other occupations. The Master of Science with a Major in Physics is offered under Plan A or Plan C.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants must satisfy the following criteria.

### Prerequisite Preparation

Prerequisite preparation should include:

Code	Title	Credits
A minimum of general college physics with laboratory equivalent to:		
PHY 2170	University Physics for Scientists I	



PHY 2180	University Physics for Scientists II
PHY 3300	Introductory Modern Physics

Fifteen credits in intermediate physics courses, for example, those equivalent to the following:

PHY 5100	Methods of Theoretical Physics I
PHY 5200	Classical Mechanics I
PHY 5210	Classical Mechanics II
PHY 5340	Optics
PHY 6400	Quantum Physics I
PHY 6410	Quantum Physics II
PHY 6500	Thermodynamics and Statistical Physics
PHY 6600	Electromagnetic Fields I
PHY 6610	Electromagnetic Fields II
PHY 6850	Modern Physics Laboratory

Mathematics equivalent to mathematics prerequisites required in those physics courses

A minimum of general college chemistry with laboratory equivalent to:

CHM 1100	General Chemistry I
& CHM 1130	and General Chemistry I Laboratory

The Graduate Record Examination, both the General section and the Physics subject test, is strongly recommended as a counseling aid in preparing the student's plan of study.

## Program Requirements

The Master of Science degree in Physics is offered in three concentrations and under Plans A (Thesis), B (Essay) and C (Courses only). In all cases, 32 total credits are required to graduate. Specific requirements are based on concentration:

- Advanced Physics (p. 287)
- Biomedical Physics (p. 287)
- Applied Physics (p. 287)

### Advanced Physics Concentration

Code	Title	Credits
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The following physics courses or their equivalents must be completed or must have been completed previously at the undergraduate level. If these courses have not been taken previously and are taken at the graduate level, they can be counted towards the required credits for the degree.

PHY 6400	Quantum Physics I	
PHY 6500	Thermodynamics and Statistical Physics	
PHY 6600	Electromagnetic Fields I	
PHY 6860	Computational Physics	

or PHY 6750 Applied Computational Methods

Mathematics equivalent to mathematics prerequisites required for the course work listed above.

PHY 7850	Data Analysis Techniques	3
PHY 6995	Professional Development Seminar in Physics	2

At least six credits of coursework in physics or astronomy at the 7000 level or above (exclusive of PHY 7990, PHY 7996, PHY 7999, PHY 8991, PHY 8995).

Other graduate courses can be taken at the 5000 level or above and can include up to 4 credits of PHY 7990, PHY 7999, PHY 8991, or PHY 8995. Courses in departments other than physics and astronomy can be taken with permission of the graduate director.

Plan A (plan-specific requirements)

PHY 8999	Master's Thesis Research and Direction (8 credits required)
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A departmental final oral examination is required of all candidates.

Plan B (plan-specific requirements)

Three additional credits in physics at the 7000 level and above.

PHY 7999	Master's Essay Direction (3 credits required)
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A departmental final oral examination is required of all candidates.

Plan C (plan-specific requirements)

Three additional credits in physics at the 7000 level and above.

### Biomedical Physics Concentration

Code	Title	Credits
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The following physics courses or their equivalents must be completed or must have been completed previously at the undergraduate level. If these courses have not been taken previously and are taken at the graduate level, they can be counted towards the required credits for the degree.

PHY 5750	Biological Physics	
ROC 6710	Physics in Medicine	
PHY 6750	Applied Computational Methods	
	or PHY 6860 Computational Physics	

Mathematics equivalent to mathematics prerequisites required for the course work listed above.

PHY 7850	Data Analysis Techniques	3
PHY 6995	Professional Development Seminar in Physics	2
PHY 7090	Survey of Biophysics (if students have taken PHY 6090 as an undergraduate student, another 7000 level course in physics and astronomy, such as PHY 7560)	3

PSL 7215	Nanobioscience	3
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At least three nine credits of graduate coursework in physics and astronomy at the 7000 level or above (exclusive of PHY 7990, PHY 7996, PHY 7999, PHY 8995, PHY 8991, PHY 8999 and equivalent courses taken as an undergraduate student).

Other graduate courses can be taken at the 5000 level or above and can include up to 4 credits of PHY 7990, PHY 7999, PHY 8991, PHY 8995. Courses in departments other than physics and astronomy can be taken with permission of the graduate director.

Plan A (plan-specific requirements)

PHY 8999	Master's Thesis Research and Direction (8 credits required)
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A departmental final oral examination is required of all candidates.

Plan B (plan-specific requirements)

PHY 7999	Master's Essay Direction (3 credits required)
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A departmental final oral examination is required of all candidates.

### Applied Physics Concentration

Code	Title	Credits
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The following physics courses or their equivalents must be completed or must have been completed previously at the undergraduate level. If these courses have not been taken previously and are taken at the graduate level, they can be counted towards the required credits for the degree.

PHY 6500	Thermodynamics and Statistical Physics	
PHY 6600	Electromagnetic Fields I	
PHY 6860	Computational Physics	
	or PHY 6750 Applied Computational Methods	

Mathematics equivalent to mathematics prerequisites required for the course work listed above.

PHY 7850	Data Analysis Techniques	3
PHY 6995	Professional Development Seminar in Physics	2
PHY 6450	Introduction to Material and Device Characterizations	4
PHY 7050	Survey of Condensed Matter Physics	3

At least three credits of coursework in physics or astronomy at the 7000 level or above (exclusive of PHY 7990, PHY 7996, PHY 7999, PHY 8991, PHY 8995).

Other graduate courses can be taken at the 5000 level or above and can include up to 4 credits of PHY 7990, PHY 7999, PHY 8991, PHY 8995. Courses in departments other than physics and astronomy can be taken with permission of the graduate director.

#### Plan A (plan-specific requirements)

PHY 8999 Master's Thesis Research and Direction (8 credits required)

A departmental final oral examination is required of all candidates.

#### Plan B (plan-specific requirements)

PHY 7999 Master's Essay Direction (3 credits required)

A departmental final oral examination is required of all candidates.

## Physics (Ph.D.)

For some students, the master's degree will be used as part of a continuing Ph.D. program; for others, it will be a terminal degree leading to employment in government laboratories, industrial programs, hospitals, teaching positions, and other occupations. The Master of Science with a Major in Physics is offered under Plan A or Plan C.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). In addition, applicants must satisfy the following criteria.

### Prerequisite Preparation

Prerequisite preparation should include:

Code	Title	Credits
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A minimum of general college physics with laboratory equivalent to:

PHY 2170	University Physics for Scientists I
PHY 2180	University Physics for Scientists II
PHY 3300	Introductory Modern Physics

Fifteen credits in intermediate physics courses, for example, those equivalent to the following:

PHY 5100	Methods of Theoretical Physics I
PHY 5200	Classical Mechanics I
PHY 5210	Classical Mechanics II
PHY 5340	Optics
PHY 6400	Quantum Physics I
PHY 6410	Quantum Physics II
PHY 6500	Thermodynamics and Statistical Physics
PHY 6600	Electromagnetic Fields I
PHY 6610	Electromagnetic Fields II
PHY 6850	Modern Physics Laboratory

Mathematics equivalent to mathematics prerequisites required in those physics courses

A minimum of general college chemistry with laboratory equivalent to:

CHM 1100 & CHM 1130	General Chemistry I and General Chemistry I Laboratory
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The Graduate Record Examination, both the General section and the Physics subject test, is strongly recommended as a counseling aid in preparing the student's plan of study.

## Program Requirements

Candidates for the doctoral degree must complete ninety credits beyond the baccalaureate, including thirty credits of dissertation research. Students must demonstrate proficiency in the fields of: mechanics, electromagnetic theory, quantum physics, and thermodynamics and statistical mechanics.

#### Course work:

Code	Title	Credits
------	-------	---------

The following courses or their equivalent will be required of all candidates:

PHY 7110	Methods of Theoretical Physics II
PHY 7400	Quantum Mechanics I
PHY 7500	Statistical Mechanics

One of the following:

3

PHY 7050	Survey of Condensed Matter Physics
PHY 7060	Survey of Elementary Particle Physics
PHY 7070	Survey of Nuclear Physics

Two of the following:

PHY 7200	Advanced Mechanics
PHY 7410	Quantum Mechanics II
PHY 7600	Electromagnetic Theory I

In general, it is recommended that students take all the advanced courses in their specialty. Students specializing in any branch of theoretical physics are encouraged to take the quantum theory of fields, or a related directed study. On petition of the student and his/her dissertation advisor, the Departmental Graduate Committee may waive any of the above course requirements.

**Ph.D. Qualifying Examination:** This will normally be taken after the student has completed approximately one year of graduate course work. Its purpose is to investigate the student's knowledge of physics and capacity for creative thought. This is a written examination. The student must submit a Plan of Work prior to taking this examination.

**Physics Colloquium (PHY 8995):** It is required that all full-time graduate students register for and attend the Departmental Physics Colloquium each semester they are in residence.

**Dissertation:** An approved dissertation is required. The thirty credit dissertation registration requirement is fulfilled by registering for the courses PHY 9991, PHY 9992, PHY 9993, and PHY 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

# Political Science

Office: 2040 Faculty/Administration Building; 313-577-2630

Chairperson: Sharon F. Lean

<https://clas.wayne.edu/politicalscience> (<https://clas.wayne.edu/politicalscience/>)

The study of political science is aimed at understanding and illuminating the nature and problems of government and the role of politics in the modern world. This is accomplished through systematic exploration of the structure and processes of government at different levels and across nations, through the study of individual and collective political behavior, and through analyses of policy problems and the processes through which public policies are formulated and administered. The field of political science is of special importance to students whose career goals include:

1. Professions likely to involve participation in public affairs, including law, engineering, criminal justice, public health, social welfare and education.
2. Administrative or executive positions in government — local, state or federal, and in non-profit organizations dealing with the public sector.
3. Teaching of political and social science at the secondary, community college and university levels.
4. Positions in the diplomatic, foreign and overseas programs of the U.S. Government and of large private concerns doing business abroad.
5. Leadership, research and staff roles in citizen organizations, political parties, economic and social interest groups, municipal research bureaus and nonprofit organizations.
6. Positions associated with mass communications, such as radio, television and newspapers, where understanding of public affairs and governmental policies and organization is required for accurate reporting and analysis.
7. Positions in private enterprise where knowledge of governmental processes is essential, such as in industrial relations, legislative liaison and public relations.

- Political Science (M.A.) (p. 289)
- Political Science and Law (M.A./J.D. Joint Degree) (p. 289)
- Public Administration (M.P.A.) (p. 290)
- Political Science (Ph.D.) (p. 291)
- Nonprofit Management (Graduate Certificate) (p. 291)

## Political Science (M.A.)

The Master of Arts program in Political Science is designed for students who have completed an undergraduate degree and wish to continue their education in Political Science. The MA program prepares students for doctoral study upon completion of the degree, and for careers in government, policy advocacy and the non-profit sector.

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). A strong undergraduate performance is a prerequisite and substantial undergraduate preparation in the social sciences is recommended. Applicants must submit the following materials via the online application.

1. Official copies of **transcripts** from all colleges and universities attended.

2. A **personal statement**: a two to three-page essay describing your educational and professional goals as they relate to the Master's program
3. One **letter of recommendation**.
4. **Optional**: Graduate Record Examination scores. Applicants with a cumulative GPA below 3.30 must submit GRE scores in order to be considered for admission. Applicants with a GPA of 3.30 or higher are not required to submit GRE scores, although they may wish to do so, especially if they are considering continuing on to the Ph.D.

The Master of Arts in Political Science program accepts applications for admission to start in either Fall or Winter terms.

## AGRADE – Accelerated Graduate Enrollment

The Department of Political Science permits undergraduate majors with superior academic records to petition for accelerated graduate enrollment under the AGRADE (BA to MA) program. This program allows qualified juniors and seniors to apply a maximum of 16 credits earned in specifically approved courses to both a bachelor's and a master's degree, saving time and money in the pursuit of both degrees. For further details about the AGRADE program, students should contact either the undergraduate advisor or graduate program director.

### Program Requirements

The Master of Arts in Political Science requires a minimum of thirty-three credits, including twenty-four in political science and either a three-credit master's essay (Plan B) or eight-credit thesis (Plan A).

All masters students must satisfy a general Departmental requirement aimed at the development of basic analytic and methodological skills by successfully completing PS 5630 (statistics) and PS 7660 (research methods). These courses should be taken early in the student's program of study. Students select a major field of study from among the following six fields: American government and politics, comparative politics, political theory, public policy, urban politics, and world politics. A minimum of twenty-four credits must be completed in political science.

If the thesis option is elected, an oral examination on the thesis is required.

A student's program is finalized in a Plan of Work that must be filed by the time the student has earned twelve credits. The student should consult the department's Graduate Program Director for guidance in the development of his/her Plan of Work and for the specific requirements of their major field concentration.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Political Science and Law (M.A./J.D. Joint Degree)

This department in cooperation with the School of Law offers a joint degree program leading to a Master of Arts degree in Political Science and a Juris Doctor degree.

Students must first be admitted to the Law School before applying for this joint degree program. Having entered the Law School, students may then apply for admission to the Master of Arts program in Political Science. Applicants must satisfy all admissions requirements for the Master of Arts in Political Science (see above), except for the Graduate Record Examination which is satisfied by Law School admission.

Students should have some undergraduate background in the social sciences, including course work in American politics. Students lacking such preparation may be required to take course work in addition to the minimum required for the degree.

This degree is offered only as a *Plan B* master's program requiring thirty-three credits including a three credit essay. Credit distribution must consist of twenty-one credits of political science including PS 5630, PS 7660, and the essay credit; and twelve credits in law courses. Programs integrating course selections from the two principal areas are developed on an individual basis.

Upon completion of these M.A. requirements and the Law School requirements for the J.D., students are awarded both degrees. Students should begin course work in the Law School and complete the required first year curriculum before taking any Political Science courses. Subsequently, a combination of political science and law courses may be taken. For further information regarding the joint program, students should consult the Department's Director of Graduate Studies.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Public Administration (M.P.A.)

This program is designed to prepare students for careers in public service in government, nonprofit organizations, and private organizations. The curriculum emphasizes study of the environment of public service, management techniques, organizational dynamics, the policy process, and the analysis of public policies.

### Accreditation

The program is accredited by the Network of Schools of Public Policy, Affairs, and Administration.

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Undergraduate preparation in the social sciences, although recommended, is not required. Applicants must have a 3.0 grade point average in the last sixty credits of undergraduate work to be considered for regular admission. In addition, scores from the Graduate Record Examination (GRE) must be submitted, with the following exceptions:

1. Applicants with an undergraduate grade point average exceeding 3.29 need not submit GRE scores.
2. Applicants holding master's degrees in other fields and having graduate grade point averages of 3.30 or higher in their graduate degree work, need not submit GRE scores. Letters of Recommendation from previous instructors are welcome but not required.

A personal statement citing career goals and objectives is also required.

### Program Requirements

The Master of Public Administration is offered under the following option:

**Plan C:** Thirty-nine credits (minimum) in course work.

Of the thirty-nine credits required for the degree, thirty credits are earned in a required set of core courses within the Department. Students without significant administrative background must meet an additional requirement of at least three credits of supervised internship over and

above the minimum of thirty-nine credits otherwise required. All students must complete thirty credits of core requirements including:

Code	Title	Credits
PS 5630	Statistics and Data Analysis in Political Science I	4
PS 7300 or PS 6700	Public Administration and its Environment Financial Management for Nonprofit Organizations	3
PS 7320	Organization Theory and Behavior	3
PS 7330	Public Budgeting and Finance	3
PS 7340	Public Personnel Management	3
PS 7350	Managing Public Organizations and Programs	3
PS 7375	Professional Development Seminar	1-2
PS 7410	Policy Formation and Implementation	3
PS 7460 or PS 7660	Program Evaluation Research Methods in Policy and Politics	3
PS 7480	Policy Analysis for Administration	3

As part of the thirty-nine credits, students are also required to complete an area of concentration consisting of at least nine credits, which may require course work outside of political science. Passage of a written comprehensive examination based on the core curriculum is also required to earn this degree.

A student's program is finalized in a Plan of Work that must be filed by the time the student has earned twelve credits. The student should consult the department's M.P.A. program director for guidance in preparing this Plan of Work.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

No credit will be granted for courses taken at Wayne State prior to formal admission to the M.P.A. program without prior authorization of the M.P.A. Program Committee.

**Areas of Concentration:** Students in the M.P.A. program are required to select an area of concentration consisting of a minimum of nine credits of interrelated course work. Students must consult with, and secure the approval of, the M.P.A. program director prior to undertaking this part of the program, but students pursuing a specific career goal may use the Elective Option to design their own specialization. Areas of concentration include:

- Economic Development Policy and Management
- Health and Human Services Policy and Management
- Human and Fiscal Resource Management
- Non-Profit Policy and Management
- Organizational Behavior and Management
- Urban and Metropolitan Policy and Management
- Elective Option (individually tailored)

**Graduate Certificate Programs:** In conjunction with their degree work, M.P.A. students may also pursue a graduate certificate in the following programs.

- Graduate Certificate in Nonprofit Management (p. 291) administered by the M.P.A. Program.
- Graduate Certificate in Economic Development (p. 298) administered by the Department Urban Studies and Planning.
- Graduate Certificate in Gerontology (p. 382) administered by the School of Social Work.



# Political Science (Ph.D.)

The Doctor of Philosophy in Political Science at Wayne State prepares students with a strong intellectual interest in political science for careers in academia, government, non-profit organizations and private-sector research firms. The Ph.D. degree in political science indicates not only the achievement of superior knowledge of the major theoretical approaches, research findings, and debates in the discipline but also the ability to initiate, design and carry out independent research.

Our Ph.D. program attracts a diverse student body, including many mid-career professionals, and accommodates both full and part-time study. Most students finish within 5 to 6 years. We offer fellowships and teaching assistantships to full-time students on a competitive basis.

Part-time students are encouraged to apply for tuition scholarships). Research assistantships may also be available with individual faculty members.

## Admissions Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

The doctoral program in political science accepts applications for admission to start in Fall or Winter terms. Applicants wishing to be considered for fellowships and scholarships must apply for Fall admission and submit all application materials by January 15.

Required application materials include official copies of transcripts from all colleges and universities attended; a personal statement describing your preparation, research experience and interests and professional goals as they relate to the Ph.D. in political science; two letters of recommendation and Graduate Record Exam scores. There are additional university requirements for international applicants (<https://gradschool.wayne.edu/admissions/international/>).

## Program Requirements

A Ph.D. student is required to complete a minimum of ninety graduate credits, thirty of which are earned through the dissertation.

Doctoral students in the political science program structure their course work in terms of a single major field and two minor fields. Major field concentrations may be elected in American government, comparative politics, political theory, public administration, public policy, urban politics, or world politics. Minor concentrations may be in the above seven fields.

**Admission to candidacy** for the doctor's degree will usually require at least two years of full-time graduate study beyond the bachelor's degree. It is granted upon fulfillment of the following requirements:

1. Filing an approved Plan of Work with the Graduate School.
2. Completion of at least 50 credit hours of coursework, including residence, methods and field requirements.
3. Completion of a preliminary oral examination after the second year of course work;
4. Completion of the written qualifying exams.
5. Identifying a dissertation advisor and naming a dissertation committee.

**Approval of Dissertation Prospectus:** The candidate is required to prepare and defend a dissertation prospectus following the qualifying exams. The prospectus must be approved by the dissertation advisory committee before the candidate begins work on the dissertation.

**Dissertation:** The thirty credit dissertation registration requirement is fulfilled by registering for the courses PS 9991, PS 9992, PS 9993, and PS 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

**Submission of Dissertation:** To complete the requirements for the degree the candidate is required to submit an approved doctoral dissertation on a topic satisfactory to their Dissertation Committee, designed to demonstrate proficiency in political science analysis, a capacity for independent and creative research, and the ability to perfect and follow through on an appropriate research or evaluation design.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Nonprofit Management (Graduate Certificate)

Graduate Certificate in Nonprofit Management offers practically relevant and academically rigorous training with flexible scheduling options and online course offerings to nonprofit sector professionals working or aspiring to develop a career in nonprofits and philanthropic community.

**Admission requirements:** Admission to this program is contingent upon admission to the Graduate School (p. 21).

- All applicants are required to submit a resume and a personal statement.
- To be considered for regular admission:
  - Applicants holding Bachelor degrees must have 3.0 grade point average in their undergraduate program.
  - Applicants holding graduate degrees must have 3.0 grade point average in their graduate program.

The program will consist of 12 credit hours, including three required foundational courses and one functional elective course for at least 3 credits.

Code	Title	Credits
<b>Required Foundational Courses</b>		<b>9</b>
PS 6700	Financial Management for Nonprofit Organizations	
PS 6720	Marketing, Development, and Grant Writing for Nonprofit Organizations	
PS 7700	Foundations of Nonprofit Management	
<b>Functional Elective</b>		<b>3</b>
PS 5630	Statistics and Data Analysis in Political Science I	
PS 5890	Dispute Resolution	
PS 7320	Organization Theory and Behavior	
PS 7340	Public Personnel Management	
PS 7350	Managing Public Organizations and Programs	
PS 7460	Program Evaluation	
ANT 5600	Museum Studies	
COM 6140	Public Relations Theory	
COM 7150	Micro-level Organizational Communication	
COM 7210	Strategic Communication and Social Media	
HIS 7835	Public History	
INF 6415	Project Management	
MGT 7700	Leadership and Management of Innovation and Technology	
MGT 7900	Project Management	
MGT 7660	Entrepreneurial Management	



MGT 7620	Complex Organizations
MGT 7630	Organizational Change and Development
SOC 6750	Sociology of Urban Health
SOC 8710	Advanced Seminar in Race/Ethnicity
SW 7095	Social Entrepreneurship
SW 7085	Social Work Leadership Strategies
SW 7720	Social Policy and Advocacy
SW 9260	Current and Historical Trends in US Social Welfare Policy
UP 5650	Metropolitan Detroit
UP 6340	Community Development
UP 6350	Housing Policy and Programs
UP 6680	Neighborhood Decline and Revitalization
<b>Total Credits</b>	<b>12</b>

The list of functional elective courses will be updated periodically subject to the review and approval of the curriculum committee of the Nonprofit Management program. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

## Psychology

Office: 7th floor, 5057 Woodward; 313-577-2800

Chairperson: Scott Bowen

Associate Chairperson: Emily Grekin

<https://clas.wayne.edu/psychology/> (<http://www.clas.wayne.edu/psychology/>)

- Industrial and Organizational Psychology (M.A.) (p. 292)
- Psychology (M.A.) (p. 293)
- Psychology (Ph.D.) (p. 293)
- Infant Mental Health (Ph.D. dual-title program) (p. 294)

## Industrial and Organizational Psychology (M.A.)

This program is designed for students interested in pursuing advanced training in applied workplace psychology. This includes:

1. job analysis and the development and validation of personnel selection and performance appraisal systems,
2. the implementation and evaluation of employee and management training and development programs,
3. enhancing employee motivation and morale, and
4. related activities that employ psychological principles and practices to increase organizational effectiveness.

Unlike the Master of Arts with a major in Psychology, this program is NOT a transitional program leading to doctoral degree candidacy.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission is offered for the fall semester only. The application deadline is May 1 for domestic students, and April 1 for international students. To be considered for admission, an applicant's background should include a minimum undergraduate upper division cumulative grade point average of 3.00, a course in introductory psychology, and a course in statistics (grade of 'B' or better). To obtain more information about this program, contact the Department of Psychology (<http://www.clas.wayne.edu/psychology/>).

The Master of Arts in Industrial/Organizational Psychology is offered only as a Plan C option: thirty credits of coursework with no thesis or essay.

## Required Courses

Code	Title	Credits
PSY 6500	Advanced Psychological Statistics	3
PSY 6510	Organization Theory	3
PSY 6520	Organizational Behavior	3
PSY 6535	Psychometric Theory	3
PSY 6550	Training and Employee Development	3
PSY 6570	Research Methods in Industrial/Organizational Psychology	3
PSY 7745	Job Analysis and Performance Criteria	3
PSY 7750	Organizational Staffing	3
PSY 7770	Testing in the Workplace	3
PSY 7790	Capstone Course	3
<b>Total Credits</b>		<b>30</b>

# Psychology (M.A.)

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21).

Only students who have been admitted to the doctoral program in psychology may elect to earn this master's degree; hence all candidates are considered as doctoral applicants.

Applicants holding bachelor's degrees, master's degrees, and/or other advanced degrees will be considered for admission. At the undergraduate level, applicants must have earned a 3.0 or better average in psychology courses and in total course work. A minimum of twelve semester credits in psychology is required and must include a laboratory course and a statistical methods course in psychology. Courses in college mathematics and biology and familiarity with computers are highly recommended.

## Program Requirements

The Master of Arts with a major in psychology is offered only as a Plan A master's program requiring thirty-two credits including an eight-credit thesis (PSY 8999). In addition to the thesis, a minimum of twenty-four credits in psychology is required and must include:

Code	Title	Credits
PSY 7150	Quantitative Methods in Psychology I	4
PSY 8150	Multivariate Analysis in Psychology	4
One of the following outside the student's major area:		
PSY 7010	History and Systems of Psychology	
PSY 7080	Human Cognition	
PSY 7120	Biological Basis of Behavior	
PSY 7250	Theory of Personality	
PSY 7400	Introduction to Life-Span Developmental Psychology	
PSY 7590	Industrial and Organizational Psychology	
PSY 7620	Social Psychology: Research and Theory	

Emphasis is placed on factual knowledge, theory, and research methods in general psychology. The thesis involves the use of laboratory or field data and must be approved by the advisor and two other committee members approved by the Departmental Graduate Committee. A final oral examination pertaining to the thesis is required.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

# Psychology (Ph.D.)

## Admission Requirements

Applicants must complete a Psychology Department application form and provide general GRE test scores, at least three letters of recommendation, and a statement of purpose in addition to the transcripts and application form required by the Graduate School. Application policies and procedures are available on the Department of Psychology (<http://clas.wayne.edu/psychology/>) website. Students will not be considered for admission until all documents have been received and evaluated. All forms are due by December 1, and applicants will be notified of the admission committee's decision around March 1.

Because the doctoral degree offered by this department is viewed as a continuation of the Master of Arts degree program in psychology,

students are expected to earn the M.A. degree or complete a master's-equivalent project as a preliminary stage in doctoral study. The work of students who hold advanced degrees when they enter this program will be evaluated to determine the extent to which it satisfies the requirements of the M.A. degree in psychology.

## Program Requirements

The Doctor of Philosophy requires ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credits. Additionally, in order that students may acquire a broad background in the factual and theoretical content of psychology, three substantive courses are required of all doctoral candidates:

Code	Title	Credits
PSY 7150	Quantitative Methods in Psychology I	4
PSY 8150	Multivariate Analysis in Psychology	4
One of the following outside the student's major area:		
PSY 7010	History and Systems of Psychology	
PSY 7080	Human Cognition	
PSY 7120	Biological Basis of Behavior	
PSY 7250	Theory of Personality	
PSY 7400	Introduction to Life-Span Developmental Psychology	
PSY 7590	Industrial and Organizational Psychology	
PSY 7620	Social Psychology: Research and Theory	

Each student is expected to select a major and minor area of specialization from among the following list. (Alternate minor areas may be developed in consultation with relevant faculty, subject to the approval of the Department Graduate Committee.)

*BEHAVIORAL AND COGNITIVE NEUROSCIENCE:* This interdisciplinary research and training program prepares students for positions in research and teaching in many areas of neuroscience, including functional cognitive neural imaging, neural physiology, behavioral pharmacology, neurobehavioral teratology, and affective neuroscience. Academic training is provided through foundation courses, specialized seminars, and intensive participation in mentored research based on one-to-one working relationships with faculty members.

*CLINICAL PSYCHOLOGY:* This training program is accredited by the American Psychological Association and educates students as scientist-practitioners. Students are prepared for a wide range of careers, including research, teaching, clinical practice, and administration. In addition to the basic departmental course requirements for a doctoral degree, students also take courses in professional ethics, psychopathology, psychological assessment, psychological interventions, diversity, and other coursework consistent with APA accreditation. Requirements also include an empirical master's thesis and doctoral dissertation, as well as supervised clinical training in assessment and treatment of clients in our training clinic, external placements, and an internship. Special opportunities for training and research in neuropsychology, child psychology, health psychology, and community psychology are available in the clinical program, with faculty in other areas of the department, and in the community.

The DEVELOPMENTAL SCIENCE area takes a life-span perspective to human development (prenatal to late adulthood), providing students with a strong foundation in dynamic modern developmental theories and models. Current studies focus on many aspects of human development. These include risk and resilience, longitudinal modeling, developmental contexts (e.g., poverty, child

care, schooling, culture/ethnicity), parent-child relationships, child maltreatment, stress reactivity/temperament, emotion regulation, joint attention, school readiness, language development, peer relations, adolescent health, Black youth development, gender development, academic achievement and motivation. Graduates of our program can work in quite varied positions related to human development, including research, education, human services, and public policy.

The SOCIAL-PERSONALITY area focuses on theory-based basic and applied research. Students can be trained in a variety of experimental, survey research, and intervention methods and techniques, including experimental designs, implicit/automatic processing, in-person and online survey administration, daily assessment techniques, hormone assays, and alcohol administration. These research methods are used to address basic research questions in the areas of social cognition, close relationship processes, interpersonal violence, and personality processes.

*INDUSTRIAL/ORGANIZATIONAL PSYCHOLOGY* offers coursework in Personnel Psychology (including such topics as criterion development, performance evaluation, and personnel selection) and Organizational Psychology (including such topics as employee motivation, engagement leadership and executive development, occupational health, and organizational climate and culture). Opportunities exist for field experience in a variety of local and national corporations. The program is designed to prepare students for careers in either applied (e.g., within organizations, consulting firms) or academic careers.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

**Residence:** All new doctoral students must enroll for their *first academic year* on a full-time basis. Students must complete at least six three-credit courses, exclusive of research and thesis credits, during the first year. Any incompletes in these six courses must be removed prior to the fall semester of the second year.

**Examinations:** The qualifying examination, a written examination covering the student's major area, is required. It is normally taken after completion of the master's thesis.

**Training, Teaching, and Research:** Doctoral students are required to participate in a training assignment each academic year they are in residence. This is required of all full-time students, irrespective of whether the training assignment includes a stipend. The student's area committee is responsible for seeing that this requirement is met each year. The training assignment involves appropriate teaching, research (other than thesis or dissertation research) or professional activities.

**Dissertation Research:** The thirty credit dissertation registration requirement is fulfilled by registering for the courses PSY 9991, PSY 9992, PSY 9993, and PSY 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

## Psychology and Infant Mental Health (Ph.D. Dual-Title)

Students admitted to the Ph.D. program in either the clinical or developmental areas of psychology can apply to earn a Ph.D. in Psychology with a dual-title in Infant Mental Health. This dual-title degree is designed to prepare psychologists to conduct research, advocate for, and intervene to improve early behavioral, cognitive, social, and

emotional development in contexts in which parents or children may suffer from developmental disabilities, health problems, or mental health problems. Students enrolled in this dual-title program take courses in infant development and assessment and develop specific skills related to infant mental health assessment and treatment. Students in clinical psychology also conduct a clinical practicum in infant mental health. The dual-title coursework follows competencies outlined by the Michigan Association for Infant Mental Health that are required for endorsement as an infant mental health specialist or an infant mental health mentor.

## Admission Requirements

Applicants must meet the admissions standards of the Graduate School and the Department of Psychology and be offered admission to the psychology doctoral program in either the clinical or developmental areas of psychology. Students may indicate on their application to the psychology program their desire to earn an infant mental health dual-title, or they can request this after an offer of admission has been made. Students already enrolled in the Ph.D. program in psychology during their first three years may also contact the infant mental health program director, Ann Stacks to enroll in the program.

## Program Requirements

Students are required to take 12 credits of infant mental health coursework, 9 of which can also count as their cognate. All students must complete and earn at least a grade of B in their courses.

Code	Title	Credits
PSY 7425	Psychology of Infant Behavior and Development	3
Students select 2 of the 3 Social Work Courses		4-5
SW 7025	Infant Mental Health: Theory to Practice across Early Childhood Settings	
SW 7880	Infant/Family Mental Health Assessment	
SW 8880	Infant Mental Health Practice	
Choose 4-5 credits from the list below		4-5
PSY 7300	Psychopathology	
PSY 7430	Developmental Assessment of Infants and Toddlers	
PSY 8440	Developmental Neuropsychology	
PSY 7990	Directed Study ( topic related to IMH)	
PSY 8760	Seminar in Clinical Psychology (Pediatric Neuropsychology)	
SW 8883	Infant Mental Health Seminar I	
SW 8884	Infant Mental Health Seminar II	
Total credits must equal 12		

In addition, it is recommended that dual-title students who are in the clinical psychology doctoral training program complete at least one semester of a supervised field placement / external practicum at an infant mental health agency. Students in both the clinical and developmental doctoral training programs will have their knowledge of infant mental health assessed during their doctoral qualifying examination. In addition, dual-title students must write a dissertation on a topic related to infant mental health, with a member of the infant mental health faculty serving on their doctoral committee.

# Sociology

Office: 2228 Faculty/Administration Building; 313-577-2930  
Chairperson: David Merolla  
<https://clas.wayne.edu/sociology/> (<http://clas.wayne.edu/sociology/>)

The graduate programs offered by the Department of Sociology are designed to prepare students for the academic job market or other professional careers through a challenging, comprehensive, and integrated curriculum that trains graduate students to 1.) theorize from a variety of sociological perspectives and 2.) analyze using a variety of methodologies. The programs require course work in the general areas of sociological theory and sociological research methods, including qualitative and quantitative methodologies. In addition to core classes, students have flexibility in pursuing specialized coursework designed to concentrate on specific areas. Graduate students can choose to specialize in areas including: Sociology of Health and Illness (SOHI); Race, Ethnicity, and Gender (REG); and Global, Transnational and Comparative (GTC).

The research interests and methodological approaches of the faculty are diverse. Faculty have studied and written about a wide range of sociological topics including: aging and life course, development, disabilities, environment, fetal alcohol syndrome, gender and work, immigration, international political economy, mental health, menopause and midlife, precarity and informal employment, military, racial politics, religion, racial discrimination in the consumer markets, race disparities in education, racialization of American Indians, sustainability, welfare state, and work-family policy. Faculty research these issues in local, national, and international (e.g., Canada, China, Japan, and Mexico) contexts. The faculty directory and information about current faculty research can be found on the department's website (<http://www.clas.wayne.edu/Sociology/Faculty-Research/>).

- Sociology (M.A.) (p. 295)
- Sociology (Ph.D.) (p. 296)

## Sociology (M.A.) Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/admission/>). In addition, applicants must provide:

1. Three (3) letters of recommendation (at least two should be from university or college faculty members).
2. Statement of Interest (this should describe applicant's reasons for graduate study in Sociology, proposed areas of study, and career goals).
3. Academic or professional writing sample.

Please note that the Sociology Department does not require GRE scores for applicants.

## Program Requirements

The Master of Arts degree with a major in Sociology requires a minimum of 31 credits. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

The program is offered as Plan B (essay) or Plan C (coursework). Students have the option of following the curriculum for

a concentration in Applied Sociological Research Methodology (see requirements below).

### Plan B

Code	Title	Credits
SOC 6280	Social Statistics	3
SOC 7200	Advanced Survey of Approaches and Techniques of Social Research	3
SOC 7260	Qualitative Sociology	3
SOC 7030	Introduction to Graduate Studies in Sociology	1
SOC 7050	Comparative Schools of Sociological Theory	3
SOC 7999	Master's Essay	3
Electives		15
Total Credits		31

### Plan C

Code	Title	Credits
SOC 6280	Social Statistics	3
SOC 7200	Advanced Survey of Approaches and Techniques of Social Research	3
SOC 7260	Qualitative Sociology	3
SOC 7030	Introduction to Graduate Studies in Sociology	1
SOC 7050	Comparative Schools of Sociological Theory	3
Electives		18
Total Credits		31

## Applied Sociological Research Methodology Concentration

### Plan B

Code	Title	Credits
SOC 6280	Social Statistics	3
SOC 7200	Advanced Survey of Approaches and Techniques of Social Research	3
SOC 7000	Internship in Applied Sociology	3
SOC 7260	Qualitative Sociology	3
SOC 7290	Advanced Social Statistics	3
SOC 7500	Advanced Qualitative Methods	3
SOC 7030	Introduction to Graduate Studies in Sociology	1
SOC 7999	Master's Essay	3
Elective		9
Total Credits		31

## Applied Sociological Research Methodology Concentration

### Plan C

Code	Title	Credits
SOC 6280	Social Statistics	3
SOC 7200	Advanced Survey of Approaches and Techniques of Social Research	3
SOC 7000	Internship in Applied Sociology	3
SOC 7260	Qualitative Sociology	3
SOC 7290	Advanced Social Statistics	3
SOC 7500	Advanced Qualitative Methods	3
SOC 7030	Introduction to Graduate Studies in Sociology	1



Elective	12
<b>Total Credits</b>	<b>31</b>

## Sociology (Ph.D.)

### Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/admission/>). In addition, applicants must provide:

1. Three (3) letters of recommendation (at least two should be from university or college faculty members). Preferably, one recommendation letter should come from the student's Master's-level advisor.
2. Statement of Interest (describing applicant's reasons for graduate study in sociology, proposed areas of study, and career goals).
3. Academic or professional writing sample.

Please note that the Sociology Department does not require GRE scores for applicants.

### Program Requirements

The PhD degree requires a minimum of ninety (90) credits beyond the baccalaureate degree. Thirty (30) credits may be earned via a MA degree, thirty (30) credits are earned at WSU as part of the program of study in the PhD program and thirty (30) credits are earned by enrolling in dissertation credits. The thirty credit dissertation registration requirement is fulfilled by registering for the courses SOC 9991, 9992, 9993, and 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. If students have completed all dissertation credits, but still need to work on the dissertation, then they may register for SOC 9995 (<https://bulletins.wayne.edu/search/?P=SOC%209995>) (doctoral maintenance credits in sociology). SOC 9995 (<https://bulletins.wayne.edu/search/?P=SOC%209995>) is zero credits and students pay a set fee to be registered; the student will be considered full-time if registered in this course number. A total of six to nine credits of the thirty Ph.D. credits may be earned outside the Department of Sociology. Students with an M.A. degree from another university must file a transfer of credit form with their plan of work, in order to get credit for up to thirty credits from another master's degree program outside of Wayne State.

In addition to the minimum of 30 credits earned during an M.A. program, Ph.D. students must complete the following courses:

Code	Title	Credits
SOC 7050	Comparative Schools of Sociological Theory	3
SOC 7290	Advanced Social Statistics	3
SOC 7260	Qualitative Sociology	3
SOC Methods: A third course in either quantitative or qualitative methods		3
Electives: Four courses, preferably in the students' area of interest (see below)		12
Cognates: Two courses (can be from a secondary area of sociology)		6

SOC 9991 & SOC 9992 & SOC 9993 & SOC 9994	Doctoral Candidate Status I: Dissertation Research and Direction and Doctoral Candidate Status II: Dissertation Research and Direction and Doctoral Candidate Status III: Dissertation Research and Direction and Doctoral Candidate Status IV: Dissertation Research and Direction	30
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Students choose four electives that best fits their area(s) of expertise. Students are encouraged to use their two cognate courses to build a secondary area of expertise.

### Race, Ethnicity, and Gender (REG)

REG focuses on how race, ethnicity, and gender serve as principles of social organization that shape individual experiences and reproduce social inequalities. Faculty in these areas examine how structural and individual sexism and racism impact both objective (e.g., educational attainment, earnings, career advancement) and subjective (e.g., racial identity, political attitudes, work-family conflict) outcomes. Recent student projects in this area have explored a broad range of substantive topics such as race and gender disparities in health and school discipline, the experiences of women and racial and ethnic minorities in the workplace, and the role of sexuality in shaping experiences of criminal victimization.

### Global, Transnational, and Comparative Sociology (GTC)

GTC prepares students to conduct theoretically grounded, methodologically sound, empirically rigorous research from a comparative perspective that addresses global and transnational social, political, economic, and cultural phenomena. GTC focuses on how fundamental macro-level structures and processes shape individual and group experiences, as well as relationships among nation-states. GTC research also evaluates micro- and meso-level processes across subnational and national units of analysis. Our GTC faculty conduct quantitative and qualitative research on a wide variety of topics such as international development, health disparities, migration, international political economy, and work and labor. Many of these substantive areas overlap with the department's two other core areas, the Sociology of Health and Illness and Race, Ethnicity, and Gender. Students are encouraged to undertake research that engages two or more areas.

### Sociology of Health and Illness (SOHI)

The sociology of health and illness examines the interaction between society and health. Sociologists within this specialty area examine how social factors impact health and illness and how health and illness impact society. This specialty also looks at health and illness in relation to social institutions such as the family, work, school, politics, and religion as well as the fundamental causes of disease and illness, the organization and operation of the health care system, behaviors of health care providers and patients, provider-patient relationships, access to care, etc. In all of these analyses, sociologists in this specialty area explore health disparities by race/ethnicity, gender, class, sexuality, age, ability, and nationality.

### Ph.D. Preliminary Examinations

Upon completion of all doctoral coursework, students take a written qualifying examination ("prelim"). The purpose of the preliminary examination is to certify that doctoral students have acquired the necessary expertise in an area of study and can integrate, apply, and discuss what has been learned to contribute to the knowledge in the field. Students should begin preparing for the preliminary examination well in advance (e.g., 6 months) of the examination.



Students are allowed two attempts to pass the Preliminary Examination. The second attempt is final and students who fail this attempt are dismissed from the program. The examination committee must remain the same for both attempts. Students should consult their advisers and the Graduate Director before taking the prelim to ensure that they are ready to take the prelim.

**Refer to the full preliminary examination guidelines on the Department website for further information on procedures and evaluation criteria.**

***Students must pass prelims in full before they can file for Ph.D. candidacy and begin their dissertation.***

If students are done with their required Ph.D. coursework but have not passed their prelims, they can enroll in SOC 9990 (pre-dissertation credits) in order to maintain active student status. Students are sometimes allowed to enroll early in SOC 9991 (the first set of dissertation credits) if they are taking those credits during the semester that they are taking prelims. Students should contact the Director of Graduate Studies to discuss this possibility.

## Ph.D. Candidacy Status

Following successful completion of the written preliminary examination, students work with their advisor to establish the Dissertation Committee, which is composed of four faculty members. The Dissertation Committee oversees student's work on a dissertation prospectus and oral defense, as well as student's work on the final dissertation and final defense. Refer to the Sociology Graduate Student Ph.D. Handbook for full details.

## Dissertation Proposal

Prior to initiating doctoral research, Ph.D. Candidates must prepare a prospectus of the proposed dissertation research. The Graduate School requires Ph.D. students to complete an oral qualifying examination as part of their degree requirements. In Sociology, the oral qualifying examination is the Dissertation Prospectus Defense. It shall be conducted by the doctoral committee after a defensible draft of the dissertation prospectus has been completed. Students receive only one chance to complete their oral qualifying examination (dissertation proposal defense). Students who fail their oral qualifying examination may be terminated from the graduate program. Proposals include a short introductory chapter, literature review, a chapter detailing students' theoretical or conceptual framework (although sometimes this is combined with the literature review), and a methods chapter that proposes how they will engage in their dissertation research.

## Urban Studies and Planning

*Office:* 3198 Faculty Administration Building; 313-577-2701  
*Chairperson:* Rayman Mohamed  
<https://clas.wayne.edu/usp> (<https://clas.wayne.edu/usp/>)

The planning profession offers a systematic, creative way to influence the future of neighborhoods, cities, rural and metropolitan areas, even the country and the world. Urban and regional planners use their professional skills to serve communities facing social, economic, environmental and cultural challenges by helping residents to:

- Develop ways to preserve and enhance their quality of life
- Find methods to protect the natural and built environment
- Identify policies to promote equity and equality
- Structure programs to improve services to disadvantaged communities, and
- Determine methods to deal effectively with growth and development of all kinds.

The majority of planners work in traditional planning areas such as community development, land use, housing, transportation planning, environmental/natural resource planning, economic development, urban design, historic preservation and community activism. Other planners work in emerging fields such as healthy communities, food systems, energy development, or place-making.

The program seeks to prepare individuals to work with local and state public agencies, nonprofit organizations and for consultants and others in the private sector.

**Accreditation:** The Master of Urban Planning program is accredited by the Planning Accreditation Board.

- Urban Planning (M.U.P.) (p. 297)
- Economic Development (Graduate Certificate) (p. 298)
- Geographic Information Sciences (Graduate Certificate) (p. 299)
- Urban Sustainability (Graduate Certificate) (p. 299)

## Urban Planning (M.U.P.)

Admission to this program is contingent upon admission to the Graduate School (p. 21).

The Master of Urban Planning is offered by this department under the following options:

**Plan A:** Forty-eight credits including an eight credit thesis.

**Plan B:** Forty-eight credits including a three credit essay.

**Plan C:** Forty-eight credits of coursework.

The distribution of the forty-eight credits is as follows: twenty-three credits in required courses (listed below), which build the core of the program; selection of elective courses (between thirteen and seventeen credits) to form a topic concentration; and the completion of a capstone component that includes an integrative project (UP 7700, four credits), and professional report (UP 7500, three credits) or a master's essay (UP 7999, three credits), or a master's thesis (UP 8999, eight credits). Students are strongly advised to pursue Plan C. Plan C includes the Professional Report, UP 7500. Students can petition the Graduate Director to substitute other courses for UP 7500. Students will not be permitted to graduate if they obtained B- or less on more than one required (core) classes.

# Required (Core) Courses

Code	Title	Credits
UP 5010	Resources and Communication in Planning	3
UP 5110	Urban Planning Process	3
UP 6120	Planning Studies and Methods	4
UP 6320	Quantitative Techniques I	4
UP 6510	Urban and Regional Systems	3
UP 6650	Planning and Development Law	3
UP 7010	Planning and Decision Theory	3

**Electives:** Following completion of at least twelve credits in required courses, students will, in consultation with their assigned faculty advisor, devise a Plan of Work, selecting elective courses that constitute one of three concentrations:

- Housing and Community Development
- Urban Economic Development
- Managing Metropolitan Growth.

With the approval of the Director of the Urban Planning Program, a student may design his/her own topic of concentration.

Prior completion of courses equivalent to the program requirements may form a basis for reducing credits in any individual Plan of Work. Possession of a master's degree in an area of study determined to be related to urban planning by the Graduate Program Committee may allow an applicant to elect a program of thirty-two credits, inclusive of capstone requirements.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

# Economic Development (Graduate Certificate)

The Graduate Certificate Program in Economic Development equips students with conceptual and methodological tools with which to pursue economic development activities in state, regional and local governments; non-profit and community organizations; private associations such as chambers of commerce; or private businesses and civic institutions engaged in economic development. It is administered in conjunction with the following graduate programs:

- Sociology
- Business Administration
- Economics
- Employment and Labor Relations
- Public Administration
- Urban Planning.

The Certificate is designed for students who wish to combine a graduate degree (master's or doctoral) with a specialty in urban, regional and state economic development. It will be awarded only in conjunction with the completion of a graduate degree or to those already holding such a degree.

# Admission Requirements

Applicants must meet the admission standards of the Graduate School. (p. 21) Eligibility for this program is limited to persons holding a graduate degree from an accredited educational institution or those actively pursuing a graduate degree at Wayne State University. Applicants must

submit a completed application form, personal statement of interest in the program, and Plan of Work.

# Program Requirements

Students must complete twelve credits in designated courses, including Core Area I, and courses (at least three credits each) from two of the Core Areas II, III, and IV. At least one course at the 7000 level must be elected, and at least one course (in addition to the Area I course) must be elected from outside the student's graduate program.

Students in the certificate program must maintain a grade point average of at least 3.0. Transfer of credit from other institutions may not be applied toward the credits required for the certificate. If a student is concurrently enrolled in a graduate degree program at the University, no more than nine credits from the certificate program may be applied toward that degree.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the College of Liberal Arts and Sciences (p. 234).

Code	Title	Credits
<b>Core Area I: Theory and Practice of Economic Development</b>		
UP 6550/ PS 6440/ ECO 6650	Regional, State, and Urban Economic Development: Policy and Administration	
<b>Core Area II: Economic Development Policy, Politics and Institutions</b>		
Business Administration		
MKT 7460	International Business	
MGT 7750	Managing Employee Relations	
Industrial Relations		
ELR 7400	Labor Relations Law in North America	
ELR 7450	Employment Relations Law in North America	
Political Science		
PS 6340	Public Sector Labor Relations	
PS 7240	Urban Public Policy	
Urban Planning		
UP 6350	Housing Policy and Programs	
<b>Core Area III: Economics and Finance of Economic Development</b>		
Business Administration		
FIN 7870	International Finance	
Economics		
ECO 6510	Advanced Public Finance	
ECO 6800/ UP 5820	Advanced Urban and Regional Economics	
Urban Planning		
UP 6310	Real Estate Development	
<b>Core Area IV: Economic Development Management and Analysis Technique</b>		
Business Administration		
BA 7020	Corporate Financial Management	
MGT 7660	Entrepreneurial Management	
Political Science		
PS 7250	Seminar in Urban Administration	
PS 7460	Program Evaluation	
Urban Planning		
UP 6650	Planning and Development Law	

For further information about this certificate program, contact the graduate advisor of the program in which you are enrolled or wish

to enroll. Students who are not in a graduate program in applied sociology, business administration, economics, industrial relations, public administration, or urban planning, or who do not already possess a graduate degree in one of these areas, should contact the Department.

## Geographic Information Sciences (Graduate Certificate)

The Graduate Certificate in Geographic Information Sciences (GIS) equips students for careers that require the creation, use, and analysis of spatial data. It is pertinent to a variety of fields, including urban planners, public health experts, landscape biologists, geologists, environmental scientists, transportation planners, criminologists, etc.

Applicants must meet the admission standards of the Graduate School (p. 21). In addition, applicants must submit a completed application form, evidence of a completed baccalaureate degree from an accredited college or university with a g.p.a of 3.0 or more, two letters of recommendation, and a personal statement on why the student would like to pursue the Graduate Certificate in GIS.

The Graduate Certificate in GIS requires a minimum of 12 credits. The actual number of credits completed for the certificate will depend on the combination of 3- and 4-credit classes that students take.

Code	Title	Credits
<b>Core course</b>		
UP 6700	Geographic Information Systems	4
<b>Elective courses</b>		
UP 7130	Advanced GIS Applications	4
ESG 5650	Applied Geologic Mapping	4
ESG 6160	Applied Remote Sensing	3
ESG 6170	Spatial Statistics and Analyses for Environmental Applications	3
INF 6050	Computer Programming	3
ET 5600	Python: Industrial Applications	3

## Urban Sustainability (Graduate Certificate)

The Graduate Certificate in Urban Sustainability equips students for careers requiring professionally-oriented, foundational, and applied interdisciplinary expertise suitable for addressing complex urban sustainability challenges that require an integrated understanding of social science, scientific, and engineering perspectives. It permits graduates to pursue sustainability careers in state, regional, and local governments; non-profit and community organizations; private associations such as chambers of commerce; industry; or private businesses and civic institutions engaged in addressing sustainability within their organizations.

Applicants must meet the admission standards of the Graduate School (p. 21). In addition, applicants must submit a completed application form, evidence of a completed baccalaureate degree from an accredited college or university with a g.p.a of 3.0 or more, two letters of recommendation, and a personal statement on why the student would like to pursue the Graduate Certificate in Urban Sustainability.

The Graduate Certificate in Urban Sustainability requires a minimum of 15 credits. The certificate may be earned independently of or concurrently with a graduate degree. It must be completed within three years, a minimum grade point average of 3.0 in certificate courses must be

maintained, and only nine credits of certificate course work may be applied toward a graduate degree at Wayne State.

Code	Title	Credits
<b>Core credits</b>		
UP 6470	Environmental Planning	3
UP 6700	Geographic Information Systems	4
BIO 7310	Sustainability of Urban Environmental Systems	2
<b>Elective credits</b>		
Students are required to complete two electives (minimum 6 credits) from the following:		6
<b>Career-specific electives</b>		
BIO 6420	Ecotoxicology and Risk Assessment	
BIO 7540	Landscape Ecology	
CE 5410	Energy, Emissions, Environment (E3) Design	
CE 6270	Sustainability Assessment and Management	
COM 7170	Health and Risk Communication	
UP 6260	Land Use Policy and Planning	
UP 6340	Community Development	
UP 6680	Neighborhood Decline and Revitalization	
<b>Specialized applications-based methods electives</b>		
BIO 5040	Biometry	
ESG 5650	Applied Geologic Mapping	
ESG 6160	Applied Remote Sensing	
ESG 6170	Spatial Statistics and Analyses for Environmental Applications	
UP 7130	Advanced GIS Applications	

### Other, non-coursework requirements

In addition to the coursework outlined above, students in the certificate will be required to attend six environment/sustainability related seminars during the course of their study. There are now numerous such opportunities at WSU, including those hosted by Water@Wayne, Urban Studies and Planning, Environmental Science and Geology, ad hoc seminar series like the one organized by T-RUST and the University of Windsor, and Green Street by the Office of Campus Sustainability. Students will be required to obtain signatures on a pre-designed form either from the presenter or the organizer of the seminar confirming their attendance.

Because of the likely prevalence of online conferences in the future, students will be permitted to attend conferences virtually and use electronic forms to verify attendance.

# School of Medicine

Dean: Wael Sakr

The Wayne State University School of Medicine faculty and staff will graduate a diverse group of physicians and biomedical scientists who will transform the promise of equal health into a reality for all. We will educate a diverse student body in an urban setting and within a culture of inclusion, through high-quality education, clinical excellence, pioneering research, local investment in our community and innovative technology, to prepare physician and biomedical scientific leaders to achieve health and wellness for our society. We are privileged to serve our community, state, nation, and the world as innovators in medicine, health, prevention and wellness.

The school offers educational programs leading to the Doctor of Medicine, Doctor of Philosophy, Master of Science and Master of Public Health degrees. Graduate education in clinical fields, postdoctoral study and continuing medical education programs, as well as a joint M.D.-Ph.D. degree, also are offered. About 300 students are admitted annually to the medical degree program and approximately 400 students are enrolled in doctoral or master's degree study in 19 program areas, including the medical degree/doctoral combined-degree program. More than 900 students are post-graduate trainees as medical residents, post-doctoral fellows, or fellows in 29 clinical research programs. Continuing education programs, seminars and colloquiums serve the faculty and students, as well as professionals throughout the community as a resource for current and ongoing developments in the health sciences. In addition to degree programs, the school offers courses in many basic medical science disciplines appropriate for students in other colleges and schools of Wayne State University. Non-degree enrollment in basic science courses at the graduate level is permitted on a limited basis for qualified students.

Research focusing on human health is the foundation of activities in the School of Medicine. Fundamental and applied research in biomedical sciences, clinical specialties and health care systems is directed by the faculty. Research programs are supported by more than \$120 million annually in research grants, contracts and gifts. Members of the faculty serve on scientific boards, panels, study groups and in professional leadership roles in health care regionally, nationally and internationally. Clinical services provided by the faculty, post-graduates and students are rendered throughout Detroit's hospitals. The school also is affiliated with these hospitals for the purpose of conducting undergraduate and graduate medical education.

## History of the School

In 1868, five physicians who witnessed the crude medical treatment on Civil War battlefields dedicated themselves to advancing health education and care, and founded the Detroit Medical College in Detroit. Originally named the Detroit Medical College, it was founded by five physicians who served in the U.S. Civil War, and upon their return determined that the city of Detroit deserved a medical school.

Today, nearly 150 years after its establishment, the Wayne State University School of Medicine is still fueled by the passion for its community and dedication to urban clinical excellence. Through social responsiveness and a continuous focus on innovation in education, research and clinical care, the School of Medicine continues to graduate a diverse group of health care leaders and advocates who go on to transform the promise of equal health care for all into a reality.

## Accreditation

Programs in the Wayne State University School of Medicine are accredited by the Liaison Committee on Medical Education, representing the American Medical Association and the Association of American Medical Colleges (the medical doctor program); the Liaison Committee of Graduate Medical Education of the Accrediting Council for Graduate Medical Education and various Residency Review Committees (residency programs); and the Accreditation Council of Continuing Medical Education (Continuing Medical Education).

## Graduate Degrees and Certificates

There are two major types of academic programs in the School of Medicine, those leading to the M.D. degree and postgraduate medical education; and those programs in the basic medical sciences which offer Master of Science or Doctor of Philosophy degrees.

## Shiffman Medical Library and Learning Resources Centers

Library resources are made available to graduate students through a variety of services from the Shiffman Medical Library in the Richard J. Mazurek Medical Education Commons. They include reference and research support, document delivery / interlibrary loan, and instruction. Orientation programs, small group workshops and individualized instruction featuring the latest information resources are available to graduate students throughout their program. Key services in support of graduate education include: reference service, remote and on-site electronic access to the major biomedical databases including PubMed, Scopus, Science Citation Index, various clinical decision support tools such as ClinicalKey, and UpToDate, and an array of electronic tools for effective information management. Materials not available in the WSU Libraries are obtained for graduate students free of charge. Access to library collections from research institution across the country including the National Library of Medicine, University of Michigan, Michigan State University and various specialized collections is also available to graduate students.

The library's goal is to support each graduate student's individualized needs through graduation and for self-directed, life-long learning. Librarians are available for consultation, for help in identifying useful literature and using the latest file management programs to organize the references at any point during their program. Librarians can also provide students with time-saving tips to prepare manuscripts. Shiffman Library offers access to a number of databases to assist students in acquiring external funding. The library staff is committed to acquiring the materials needed to support the array of graduate programs offered by the affiliated colleges. A computer lab is available in the library for graduate students use. The lab contains five desktop workstations, one adaptive workstation, a standalone scanner, and a fully wired teacher's lectern.

Please contact the library for more information about current and planned services. The staff of the Shiffman Library is committed to enabling transparent discovery and access to the best possible resources that expeditiously and effectively meet student and faculty needs.

## Office of Student Affairs

The Office of Student Affairs is under the supervision of an associate dean. Services include: career and supportive counseling; crisis intervention; liaison for referrals; academic advising; guidance for residency application; support for student government and organization activities as well as oversight of Special Events, the Health and Wellness Program and the Medical Student Faculty Mentoring Program. The staff is committed to assisting students in every way possible as the students work toward M.D. degrees. These programs are part of the School's commitment to provide each matriculant with support services so that the rigorous educational program can be presented within as comfortable an environment as possible.

**Counseling:** Appointments for confidential supportive and career counseling can be arranged through the Office of Student Affairs.

**Mentoring:** Faculty mentors are provided through the Office of Student Affairs for the purpose of giving guidance and support to the medical students throughout their medical school careers.

**Health and Wellness:** The Health and Wellness Program was developed so that each student optimizes healthy coping strategies, finds good balance and achieves academic success throughout medical school.

## Office of Development and Alumni Affairs

*Office:* 540 E. Canfield, 1369 Scott Hall; Detroit, MI 48201

The Wayne State University School of Medicine Office of Development and Alumni Affairs and the Medical Alumni Association exist to support the advancement of the School of Medicine by establishing and cultivating mutually beneficial, lifelong relationships between alumni, students and the School of Medicine. The Office of Development and Alumni Affairs and the Medical Alumni Association work collaboratively to develop services, benefits, programs and communications designed to foster awareness, generate pride, encourage involvement and increase engagement and financial support.

We are proud to serve and represent the broad array of more than 22,000 alumni who were educated and trained at the WSUSOM – Physicians, Researchers, Residents and Fellows.

## Office of Marketing and Communications

*Office:* 540 E. Canfield, 1320 Scott Hall, Detroit, MI 48201

This office is responsible for the marketing, communications and public relations programs for the Wayne State University School of Medicine. The office leads strategy on a wide array of communications initiatives aimed at raising the stature of the Wayne State University School of Medicine and its prominence in medical education, research, care and community engagement. The office takes an integrated approach, leveraging resources and collaborating across our campus and community to enhance the School of Medicine brand in Detroit and beyond. Some areas of focus include media relations, digital communications, advertising and outreach, collateral publications and editorial services.



# Doctor of Medicine

## Educational Goals

The Wayne State University School of Medicine has established a comprehensive set of competencies and institutional learning objectives for the Doctor of Medicine program. This list formalizes the goals of a WSU medical education, and defines what a graduating physician should know to practice medicine in the 21st century. There are six general competencies, including:

1. integration of the basic sciences in medicine;
2. integration of clinical knowledge and skills to patient care;
3. interpersonal and communication skills;
4. professionalism;
5. organizational and systems-based approaches to medicine, and;
6. life-long learning and self-improvement.

Each of these competencies is further refined into specific educational objectives which are taught and measured through the medical school curriculum.

## Continuing Medical Education

The Division of Continuing Medical Education (CME) was established to provide medical education activities to physicians who have completed their training, as well as support in graduate medical education programs. The CME Division is concerned with addressing the continuing medical education needs of physicians residing in the tri-county area of metropolitan Detroit, as well as the needs of the other physicians in the state and country.

Various special conferences, symposia and workshops, lasting one to five days, are offered under the academic sponsorship of the departments in the Medical School. Physicians from Michigan and many other states and countries attend meetings which reflect new discoveries and changes in needs and interests in medicine. Every effort is made to assist physicians in their continuing efforts to increase their competence and to improve their skills on behalf of the patients they serve.

In addition to these special programs, 'continuing' activities of one- to two-hour duration are scheduled at regular intervals during the year. Physicians are encouraged to participate in the departmental workshops, teaching rounds and grand rounds that meet their interests or needs; they are conducted in the clinical settings of Wayne State University and the Detroit Medical Center.

Other types of CME activities offered by the Wayne State University School of Medicine include journal based CME, web based CME and CME associated with Learning from Teaching.

There are increasing pressures on practicing physicians to maintain and update their professional competence and skills. Wayne State University School of Medicine is striving to respond to these needs through continuing medical education. Inquiries may be directed to the Division for information about programs on specific subjects or programs for specific medical specialties.

## Accreditation (CME)

Wayne State University School of Medicine is accredited by the Accreditation Council of Continuing Medical Education (ACCME) to sponsor continuing medical education (CME) for physicians. As an accredited sponsor of CME, the School designates certain of its continuing medical education offerings as meeting the criteria for Category 1 of the Physician's Recognition Award of the American Medical

Association, and for the requirements for license renewal by the Michigan Medical Practice Board. Other certifications from various medical specialty societies and boards are secured for individual offerings as may be required.

## Graduate Medical Education Program (GME)

Graduate Medical Education (GME) at Wayne State University (WSU) is an essential element of a diverse and rich academic environment encompassing many specialties and sub-specialties in the practice of medicine. The residency programs directly impact the lives of thousands through patient care, but most importantly through the educational mission that reaches beyond hospitals to the community. Graduate Medical Education at WSU produces exceptional physicians who are committed to provide outstanding care to the communities we serve including not only the city of Detroit and the surrounding metropolitan area, but the state of Michigan and beyond. GME provides service to our communities, support to our peers, and training to our residents, and extends our medical knowledge, compassion and skills toward our mission of patient safety and quality healthcare for today and tomorrow. Wayne State University as a sponsoring institution has achieved the maximum Accreditation Council for Graduate Medical Education (ACGME) accreditation status with no citations and a commendation. The next site visit is scheduled in 2024.

WSU is the sole sponsoring institution of ten Graduate Medical Education programs for 150 residents and fellows in the following areas:

- Anesthesiology
- Brain Imaging Medicine
- Dermatology
- Family Medicine
- Internal Medicine
- Ophthalmic Plastic and Reconstructive Surgery
- Otolaryngology
- Physical Medicine and Rehabilitation
- Urology
- Transitional Year.

These programs are based mainly with our hospital partners to assure an optimal learning environment: Ascension Crittenton Hospital, Beaumont Health Hospitals – Taylor and Dearborn, St. Joseph Mercy Oakland Hospital, Barbara Ann Karmanos Cancer Institute, and John Dingell Veterans Administration Medical Center.

The School of Medicine, through its Graduate Medical Education Committee (GMEC) and the Office of Graduate Medical Education, holds the ultimate responsibility for all GME programs sponsored by the university. The Office of GME tracks program outcome measures, conducts extensive internal reviews of each GME program, and ensures that each program teaches and assesses the ACGME general competencies and associated milestones in the areas of: patient care, medical knowledge, practice-based learning and Improvement, interpersonal and communication skills, professionalism, and systems-based practice. Other GME office responsibilities include:

- Demonstrating an overall commitment to GME;
- Maintaining affiliation agreements with other institutions participating in GME;
- Monitoring the Joint Commission status of participating institutions;
- Ensuring that formal quality assurance programs are conducted at participating institutions;
- Monitoring eligibility and selection of residents;

- Monitoring all aspects of resident appointment;
- Ensuring resident participation in:
  - educational and professional activities,
  - patient safety and quality of care education,
- Overseeing the residents' work environment; and adhering to the ACGME Duty Hour standards.
- Development and implementation of residency and faculty educational programs,
- Oversight of Graduate Medical Education Committee,
- Designing curricula and oversee the development of scholarship and research,
- Organizing an annual GME orientation and
- Overall design and implementation of policies and procedures adhering to the ACGME requirements.

All program participants are involved in a system of graduate teaching responsibilities within the realm of clinical diagnosis and patient care, including contribution to the teaching of medical students who rotate through the clinical department. Orientation programs, teaching conferences and seminars, bedside teaching, and a wide variety of supervised surgical and technical training are a systematic part of the graduate medical education of the physicians in the various specialty programs.

In addition to the WSU-sole sponsored programs, the SOM has affiliated GME programs with two major regional health care systems: Detroit Medical Center and Henry Ford Health System.

## Medicine (M.D.)

### Office of Enrollment Management Services

Office of Admissions  
Mazurek Education Commons  
320 E Canfield, Suite 322  
Detroit, MI 48201  
Telephone (313) 577-1466  
mdadmissions@wayne.edu

## Admission to M.D. Program

The School of Medicine accepts 290 students for its entering class. The students are selected from a large number of applicants who apply through the American Medical College Application Service (AMCAS).

## Academic Requirements for Admission

Wayne State University School of Medicine requires applicants for admission to have earned a bachelor's degree.

Required subjects for baccalaureate preparation are:

- general physics;
- inorganic and organic chemistry;
- general biology;
- college writing or composition.

It is recommended that students complete lab work in the above science courses. and take a course in statistics, ethics, and biochemistry. The student is urged to select additional subjects which will contribute substantially to a broad cultural background.

It is to be noted that when students are accepted before completion of their premedical requirements, they must maintain a satisfactory

scholastic average in their continued premedical work to warrant enrollment in the School of Medicine.

The *Medical College Admission Test* is required of all applicants for admission into the first year class. Students seeking admission should take this test no later than September of the year prior to matriculation. After a preliminary review of application credentials, interviews are held with those applicants who warrant further consideration.

## Admission to the First-Year Class

The School of Medicine adheres to the acceptance procedures of the Association of American Medical Colleges, including the 'Early Decision Plan.' Admission procedures of the School are:

1. No place in the first-year class shall be offered to an applicant more than one year before the actual start of instruction for that class.
2. Following the receipt of an offer of a place in the first-year class, a student shall be allowed three weeks in which to make a decision.
3. No student who has at any time been requested to withdraw for any reason from a medical school in which he/she has been registered will be accepted by the WSU School of Medicine. Students who have been dropped for poor scholarship by the School of Medicine should not expect favorable consideration for readmission.
4. Any applicant accepted by the School of Medicine who does not complete enrollment must apply for readmission and meet all requirements in force at the time of the new application.

## Selection Factors

The Committee on Admissions will select applicants who, in its judgment, will make the best students and physicians. Consideration is given to the entire record, including grade point average, Medical College Admission Test scores, recommendations and interview results (one-on-one interview and multiple mini-interviews), as these reflect an applicant's personality, maturity, character and suitability for medicine. Additionally, the committee regards as desirable certain health care experiences, such as volunteering or working in hospitals, hospices, nursing homes or doctor's offices. The committee also values experience in biomedical laboratory research. Following an initial screening process, students with competitive applications are selected to complete a secondary application. Special encouragement is given to candidates from medically underserved areas in Michigan.

As a state-supported school, the institution must give preference to Michigan residents; however, out-of-state applicants are encouraged to apply. An applicant's residency is determined by university regulations. Applicants must be a U.S. or Canadian citizen or U.S. permanent resident to be eligible for admission. Students whose educational backgrounds include work outside the United States must have completed two years of course work, including the prerequisite courses at a U.S. or Canadian college or university. Canadian citizens are considered non-resident for both admission and tuition purposes. Interviews are required but are scheduled only with those applicants who are given serious consideration. Students are urged to apply by November 1.

## Application and Acceptance Policies

The School of Medicine adheres to the acceptance procedures of the Association of American Medical Colleges, including the 'Early Decision Plan.' Admission procedures of this School are:

1. An American Medical College Application Services application must be filed between June 1 and December 31 of the year preceding anticipated matriculation.

2. Applicants must respond to acceptance offer within three weeks of the offer.

## Diversity and Integrated Student Services

This unit supports the medical school to maintain its representation of diversity across economic, personal and social dimensions. This is accomplished through pipeline outreach programs and special projects that present a combination of academic and extracurricular activities designed to inform high school, undergraduate and post-baccalaureate students about career opportunities in medicine and other health professions, and prepare them to gain admission.

A special program feature of the unit is the Post Baccalaureate Program. This medical school preparatory program offers an opportunity to a small number of applicants who are Michigan residents, and whose undergraduate academic achievement has been compromised by certain disadvantaging factors to gain admission into medical school. Successful completion of this special one year program facilitates entry into medical school for those selected applicants from disadvantaged backgrounds.

## Registration Requirements

### Physical Examination

Each student must present proof of a physical examination at or before registration for the first year. Students are also required to be annually tested for TB (skin test or chest x-ray). Additional vaccines and titers may be required.

### Health Insurance

Health insurance is mandatory and students must demonstrate proof of insurance at registration. Students have the option of purchasing the group plan offered by the Medical School, which can be purchased at registration.

**Disability Insurance** is mandatory and can be purchased at registration.

**Criminal Background Check:** All accepted applicants to the medical school will be required to complete a criminal background check through AMCAS and Certiphi, the selected vendor for criminal background checks.

### Transcripts

Transcripts of all university-level work must be on file in the Registrar's Office for each medical student, including the degree statement from the university from which the student obtained his/her degree.

## Academic Program

The Office of Undergraduate Medical Education is responsible for the overall management, administration, and supervision of the undergraduate medical curriculum. The undergraduate program in medicine is structured in phases that divide the four years on a time, and more importantly, conceptual level.

- The initial segment (18 months) establishes a framework of skills, scientific, clinical and societal – a chassis on which to build the practice of medicine.
- The next segment (12 months) involves an intense clinical experience in all aspects of medicine.
- The final segment (14 months) sees students advance toward their career goals while being prepared for residency.

Phase 1 of the curriculum is aimed at "coaching up" our students, training them earlier, and providing context as to how/why to apply classroom learning within clinics and in the community. To give students an even greater start, we align the basic science curriculum to best take

advantage of cadaver dissection opportunities for additional hands-on experience.

### Phase 1, Segment 1

The Segment 1 curriculum will be eight months in length and taught on a systems-based model. Each system is taught via lecture; small-group problem-based and case-based learning; and laboratory experiences. Of particular note, this segment is centered upon anatomic cadaver dissection. This is unusual in medical schools in 2018, but we consider it to be essential.

Systems curriculum present the anatomy, physiology, biochemistry, histology and genetics of each organ system, correlated with anatomic dissection.

Importantly, clinical education is also correlated with each system, as the physical exam and history exercised and instruction in the clinical skills course will mirror the system taught in the basic science portion.

### Phase 1, Segment 2

The second segment is concentrated on the abnormal – the diseased states of the human. This, again, is taught by organ system. Minor revisions are ongoing in this curriculum, which will build upon the existing systems approach.

Clinical instruction is centered upon the continuity clerkship in which each student is paired with a preceptor in community practice for a half day of clinic every other week. This real-patient experience is integrated with further instruction in clinical skills and regional/focused physical exam in the skills center.

Students must pass Step 1 of the USMLE (United States Medical Licensing Examination) in order to be promoted from Year II to Year III. Students must also pass Step 2 (both clinical knowledge and clinical skills) examinations in order to graduate.

### Phase 2, Segment 3

This phase is defined as the 12 months of core clerkship courses, including orientation weeks, helping with the transition to clerkships, and a longitudinal course called Clinical Reasoning, Integration and Skills for Practice (CRISP). Students are assigned to faculty coaches to aid and assist in the student's growth in clinical mastery.

### Phase 3, Segment 4

This phase is 14 months in the expanded fourth year of medical school, which will start in April of the students' third year. Courses are one calendar month or, in some cases, two weeks. Rotations at other institutions (visiting or audition) and independent electives are supported and encouraged.

## Matriculation and Promotion

Primary evaluation of students is the responsibility of the faculty of the appropriate departments or courses for Year I-III students, and the Elective Course Coordinators for Year IV students.

Students are evaluated promptly by the primary evaluators, who make recommendations to the Promotions Committee which may include: promotion, re-examination, repetition of all or part of the year, interruption or suspension or probation of a student's program, or dismissal. Questions of suitability for the study and practice of medicine on other than academic grounds are handled according to the University's 'Guidelines for Assisting Persons with Behavioral Problems.'

The Promotions Committee is chaired by the Vice Dean for Medical Education or his/her designee and consists of twelve members: four nominated from the faculty by the President of the Faculty Senate, with

the advice and consent of the Executive Committee; four nominated from the Council of Departmental Chairpersons; and four selected by and from the student body. Faculty members serve three-year terms. Student members serve for one year and have full discussion privileges. Their votes are advisory to the Committee.

At appropriate intervals, the Promotions Committee meets to make promotional decisions based upon the student’s academic performance. The Committee has the obligation to assure that the rules of the School and the rights of the individuals involved have been fairly met. Decisions are transmitted for the Committee by the Associate Dean for Academic and Student Programs. Students have the right to appeal such decisions by direct petition to the Promotions Committee. In the event of such an appeal, the Committee may gather evidence and hear witnesses. The student involved has the right to be heard by the Committee and may call a reasonable number of witnesses to testify in his/her behalf. The Promotions Committee is the final decision-making body with regard to the promotion process. The student has the right to request the Office of the Provost to review any determinations made by the Promotions Committee of the School of Medicine relative to academic performance on his/her part.

*Leaves of Absence* may be granted to students with documented health problems (medical leave of absence), or to those with appropriate educational opportunities outside the School (educational leave of absence), for personal reasons (personal leave of absence); or the medical school can put students on an administrative leave of absence.

Any students whose enrollment is continued by the Promotions Committee, or, in the case of Leaves of Absence, by the Vice Dean for Medical Education or his/her designee, is considered to be making academic progress toward the M.D. degree.

## Grading

The grading system throughout all years of the School’s curriculum is:

- ‘H’ (Honors)
- ‘S’ (Satisfactory)
- ‘U’ (Unsatisfactory)
- ‘I’ (Incomplete)

The exception to this rule is Year 3 where an S+ (Satisfactory with commendations) can be achieved in all clerkships. The minimum passing grade is ‘S’. In order to be promoted from year to year, students must obtain ‘S’ on all course work and complete all requirements established by course directors.

## Graduation Requirements

Students regularly registered in the School of Medicine may receive the degree Doctor of Medicine upon the fulfillment of the following requirements:

1. They must be at least 21 years of age, must exhibit good moral character, and must be suitable for the practice of medicine.
2. They must have satisfactorily completed all the academic requirements established by the School.
3. They must have paid all fees in full, and have all holds released.
4. They must pass Step 1 and pass Step 2 (clinical knowledge) and Step 2 (clinical skills) of National Board examinations.

## M.D. Curriculum

### Segment 1 - Phase 1, Part 1 - Pre-Clerkship

Code	Title	Credits
Courses include:		
MD1 5001	Human Body Foundations I	10
MD1 5002	Human Body Foundations II	10
MD1 5003	Human Body Foundations III	10
MD1 5101	Clinical Skills 1A	1
MD1 5102	Clinical Skills 1B	1
MD1 5103	Clinical Skills 1C	1
MD1 5201	Population, Patient, Physician and Professionalism (P4) 1A	1
MD1 5202	Population, Patient, Physician and Professionalism (P4) 1B	1
MD1 5203	Population, Patient, Physician and Professionalism (P4) 1C	1
MD1 5301	Service Learning 1-A	0
MD1 5302	Service Learning 1-B	0
MD1 5303	Service Learning 1-C	0
Students can choose one optional elective track:		
MD1 5511 & MD1 5512	Community Engagement Elective 1A and Community Engagement Elective 1B	
MD1 5521 & MD1 5522	Medical Education Research Elective 1A and Medical Education Research Elective 1B	
MD1 5531 & MD1 5532	Leadership and External Affairs Development (LEAD)/Medical Political Action (MPAC) Elective 1A and Leadership and External Affairs Development (LEAD)/Medical Political Action (MPAC) Elective 1B	
MD1 5911 & MD1 5912	Business of Medicine Elective 1A: Introduction to the Healthcare Ecosystem and Business of Medicine Elective 1B: Healthcare Ecosystem Explorations	
MD1 5541 & MD1 5542	Research Elective 1A and Research Elective 1B	
Total Credits		36

### Segment 2 Phase 1, Part 2 - Pre-Clerkship

Code	Title	Credits
Courses include:		
MD2 6001	Human Disease Foundations I	10
MD2 6002	Human Disease Foundations II	10
MD2 6003	Human Disease Foundations III	10
MD2 6101	Clinical Skills 2A	1
MD2 6102	Clinical Skills 2B	1
MD2 6103	Clinical Skills 2C	2
MD2 6201	Population, Patient, Physician and Professionalism (P4) 2-A	1
MD2 6202	Population, Patient, Physician and Professionalism (P4) 2-B	1
MD2 6203	Population, Patient, Physician and Professionalism (P4) 2-C	1
MD2 6301	Service Learning 2-A	0
MD2 6302	Service Learning 2-B	0
MD2 6303	Service Learning 2-C	0
MD2 6401	Clinical Experiential Course 2-A	1



MD2 6402	Clinical Experiential Course 2-B	1
MD2 6403	Clinical Experiential Course 2-C	1
MD2 6601	Step 1 Preparation Course 2A	1
MD2 6602	Step 1 Preparation Course 2B	1
MD2 6603	Step 1 Preparation Course 2C	1
MD2 6605	Clinical Synthesis and Integration Course	3
MD2 6610	Step-I Enhancement Course	2
MD2 6800	Preparation for Clerkships	5

Students can choose one optional elective:

MD2 6511 & MD2 6512	Community Engagement Elective 2A and Community Engagement Elective 2B	
MD2 6521 & MD2 6522	Medical Education Research Elective 2A and Medical Education Research Elective 2B	
MD2 6531 & MD2 6532	Leadership and External Affairs Development (LEAD)/Medical Political Action (MPAC) Elective 2A and Leadership and External Affairs Development (LEAD)/Medical Political Action (MPAC) Elective 2B	
MD2 6541 & MD2 6542	Research Elective 2A and Research Elective 2B	
MD2 6911 & MD2 6912	Business of Medicine Elective 2A: Innovation and Entrepreneurship: Foundations and Business of Medicine Elective 2B: Innovation and Entrepreneurship: Following the Roadmap	

**Total Credits** 53

### Segment 3 - Phase 2 - Clerkship

Code	Title	Credits
MD3 7100	Family Medicine Clerkship	4
MD3 7200	Internal Medicine Clerkship	12
MD3 7300	Pediatrics Clerkship	6
MD3 7400	Surgery Clerkship	12
MD3 7500	Psychiatry Clerkship	4
MD3 7600	Obstetrics and Gynecology Clerkship	6
MD3 7700	Neurology Clerkship	4
MD3 7950	Clinical Reasoning, Integration, Skills and Practice (CRISP) <small>Class is offered for 1 credit per 12 week block</small>	4

**Total Credits** 52

### Segment 4 - Phase 3 - Post-Clerkship

Code	Title	Credits
MD4 9620	Clinical Reasoning Using Integrated Skills in Education (CRUISE) <small>Taken in 4 terms for a maximum of 8 credits</small>	8
MD4 9610	Teaching and Learning in Medical Education (TLMed) <small>Taken in 4 terms for a maximum of 8 credits</small>	8
MD4 8160	Emergency Medicine Core Clerkship	7
MD4 9545	Step 2 Preparation	1

Required Acting Internship (choose 1 of 3 Acting Internships below to fulfill the requirement):

MD4 8210	Acting Internship: Family Medicine	
MD4 8470	Acting Internship: Internal Medicine	
MD4 9210	Acting Internship: Pediatric	

Select one capstone course: 6

MD4 9392	Residency Preparation - Surgical	
MD4 9600	Residency Preparation - Nonsurgical	

Required MD4 Electives: seven courses (6 credits each) to be chosen from MD4 courses not taken to satisfy any of the above requirements. <sup>1</sup> Clinical Elective is required each term 42

**Total Credits** 79

## Cooperative Electives Exchange Program

The Deans of the four Michigan medical schools, acting as the Michigan Medical Schools Liaison Committee, have signed cooperative agreements allowing students full credit for courses taken as electives at any one of the participating medical schools:

- Wayne State University
- University of Michigan
- Michigan State University
- Michigan State University College of Osteopathic Medicine.

The Deans intend the program 'to make the best use of one another's resources to the greater advantage of the student and the Michigan community. By allowing medical students full academic credit for elective courses taken at any one of our respective medical schools, our students will be able to share productively in the learning and training opportunities of the entire State.'

Under the course exchange program, election of an 'away course' at one of the cooperating schools requires approval of both the parent and host institutions. Enrollment, matriculation and fee payments continue without alteration at the parent institution; however, students are responsible for all travel and living expenses incurred during the 'away' elective. Additional information can be obtained from Records and Registration, School of Medicine. Under the course exchange program, election of an 'away course' at one of the cooperating schools requires approval of both the parent and host institutions. Enrollment, matriculation and fee payments continue without alteration at the parent institution; however, students are responsible for all travel and living expenses incurred during the 'away' elective. Additional information can be obtained from Records and Registration in the School of Medicine.

## Medicine Three-Year Program (M.D.)

Contact Information:

Office of Admissions  
Mazurek Education Commons  
320 E Canfield, Suite 322  
Detroit, MI 48201  
Telephone (313) 577-1466  
mdadmissions@wayne.edu

The Three-Year MD (3YMD) program at the Wayne State University School of Medicine (WSUSOM) offers a limited number of students the opportunity to complete their medical degree in three years. Students accepted into the 3YMD program receive conditional acceptance into a WSUSOM sponsored or administered residency upon graduation from the 3YMD program. Students enrolled in the 3YMD program will complete all of the requirements for graduation from medical school as set forth by the Liaison Committee on Medical Education and will receive extensive mentorship from their chosen residency program while in the 3YMD program.

### Three-Year M.D. Curriculum

#### Segment 1 - Phase 1, Part 1 - Pre-Clerkship

Code	Title	Credits
Courses include:		
MD1 5001	Human Body Foundations I	10



MD1 5002	Human Body Foundations II	10
MD1 5003	Human Body Foundations III	10
MD1 5101	Clinical Skills 1A	1
MD1 5102	Clinical Skills 1B	1
MD1 5103	Clinical Skills 1C	1
MD1 5201	Population, Patient, Physician and Professionalism (P4) 1A	1
MD1 5202	Population, Patient, Physician and Professionalism (P4) 1B	1
MD1 5203	Population, Patient, Physician and Professionalism (P4) 1C	1
MD1 5301	Service Learning 1-A	0
MD1 5302	Service Learning 1-B	0
MD1 5303	Service Learning 1-C	0
Select one of the following elective tracks:		5
MD1 5521 & MD1 5522	Medical Education Research Elective 1A and Medical Education Research Elective 1B	
MD1 5541 & MD1 5542	Research Elective 1A and Research Elective 1B	
<b>Total Credits</b>		<b>41</b>

## Segment 2 Phase 1, Part 2 - Pre-Clerkship

Code	Title	Credits
Courses include:		
MD2 6001	Human Disease Foundations I	10
MD2 6002	Human Disease Foundations II	10
MD2 6003	Human Disease Foundations III	10
MD2 6101	Clinical Skills 2A	1
MD2 6102	Clinical Skills 2B	1
MD2 6103	Clinical Skills 2C	2
MD2 6201	Population, Patient, Physician and Professionalism (P4) 2-A	1
MD2 6202	Population, Patient, Physician and Professionalism (P4) 2-B	1
MD2 6203	Population, Patient, Physician and Professionalism (P4) 2-C	1
MD2 6301	Service Learning 2-A	0
MD2 6302	Service Learning 2-B	0
MD2 6303	Service Learning 2-C	0
MD2 6401	Clinical Experiential Course 2-A	1
MD2 6402	Clinical Experiential Course 2-B	1
MD2 6403	Clinical Experiential Course 2-C	1
MD2 6610	Step-I Enhancement Course	2
Select one of the following elective tracks:		5
MD2 6521 & MD2 6522	Medical Education Research Elective 2A and Medical Education Research Elective 2B	
MD2 6541 & MD2 6542	Research Elective 2A and Research Elective 2B	
<b>Total Credits</b>		<b>47</b>

## Segment 3 - Phase 2 - Clerkship

Code	Title	Credits
MD3 7100	Family Medicine Clerkship	4
MD3 7200	Internal Medicine Clerkship	12
MD3 7300	Pediatrics Clerkship	6
MD3 7400	Surgery Clerkship	12
MD3 7500	Psychiatry Clerkship	4

MD3 7600	Obstetrics and Gynecology Clerkship	6
MD3 7700	Neurology Clerkship	4
MD3 7950	Clinical Reasoning, Integration, Skills and Practice (CRISP) <small>Class is offered for 1 credit per 12 week block</small>	4
<b>Total Credits</b>		<b>52</b>

## Segment 4 - Phase 3 - Post-Clerkship

Code	Title	Credits
Required Course:		
MD4 8160	Emergency Medicine Core Clerkship	7
MD4 9545	Step 2 Preparation	1
Required Sub-internship (choose 1 of 5 sub-internships below to fulfill the requirement):		7
MD4 8210	Acting Internship: Family Medicine	
MD4 8470	Acting Internship: Internal Medicine	
MD4 8770	Obstetrics/Gynecology Subinternship	
MD4 9210	Acting Internship: Pediatric	
MD4 9490	Surgery Subinternship	
<b>Total Credits</b>		<b>15</b>

# Medicine and Business Administration (M.D./M.B.A. Joint Degree)

Students admitted to the M.D. program must be in good academic standing prior to enrolling in the Business of Medicine elective track within the M.D. program. Students in the Business of Medicine track will apply for admission to the M.B.A. program, and upon acceptance complete M.B.A. courses during the Pre-Clerkship and Post-Clerkship phases of the M.D. program.

The M.D. curriculum is structured in phases that divide the four years on a time, and more importantly, conceptual level.

- **Pre-Clerkship phase** - The initial segments are known as the Pre-Clerkship phase (<https://highways.med.wayne.edu/overview/structure/pre-clerkship-phase/>) which is **18 months in duration**. This phase establishes a framework of skills, scientific, clinical and societal – a chassis on which to build the practice of medicine.
- **Clerkship phase** -The next segment is called the Clerkship phase (<https://highways.med.wayne.edu/overview/structure/clerkship-phase/>) and is a total of 12 months. This phase involves an intense clinical experience in all aspects of medicine.
- **Post-Clerkship phase** -The final segment is the Post-Clerkship phase (<https://highways.med.wayne.edu/overview/structure/post-clerkship-phase/>) and is **14 months in duration**. During this phase, students advance toward their career goals while being prepared for residency.

The M.B.A. program provides knowledge across multiple business disciplines and it requires a minimum of 36 credit hours, or 12 courses. This program requires completion of 6 core courses (18 credits) and 6 elective courses (18 credits). Elective requirements and concentrations provide the opportunity to tailor the M.B.A. program to specific interests and career goals. For M.D./M.B.A., 9-elective credits will be transferred from the M.D. program. The transferred courses will be the Business of Medicine elective courses in the M.D. program. The remaining 9-elective credits will be selected from the elective course offerings within the M.B.A. program.

# Anesthesiology

## Office:

St. Joseph Mercy Oakland  
Medical Office Building  
44555 Woodward Avenue, Suite 306  
Pontiac, MI 48341  
248-858-2259

<https://anesthesiology.med.wayne.edu/>

This department offers medical students a program in anesthesiology comprised of individual instruction in the operating room and a series of regularly scheduled seminars. The major objectives of study in this field include the acquisition of skills and knowledge related to: airway management, including endotracheal intubation; lumbar puncture and spinal anesthesia; monitoring of anesthetized patients; pharmacology of anesthetic agents and other drugs related to anesthesia; preoperative evaluation and preparation of a patient for anesthesia and surgery; physiology of the perioperative period; respiratory therapy including management of patients who require prolonged ventilator care; management of acute drug intoxication; and the management of pain. A one-month elective in anesthesiology is offered to medical students during their junior or senior year.

# Dermatology

Office: 18100 Oakwood Blvd., Suite 300; Dearborn; MI 313-429-7843

Chairperson: Darius R. Mehregan

<http://www.dermatology.med.wayne.edu/>

The instructional and research activities of this department focus on the skin as a distinct organ of the body. Specific diagnostic procedures developed in recent years such as immunopathology, and various modalities of treatment such as PUVA, UVA, Narrow band UVB, lasers and Mohs micrographic surgery, are taught in the department.

A comprehensive clinical dermatology elective is offered to third and fourth year medical students. A research elective is also available to qualified students, offering both basic and clinical research in the fields of immunobiology, molecular biology, ultrastructural analysis, photobiology and dermatopathology. The laboratory of molecular dermatology specializes in the molecular biology of malignant melanoma. The department offers a three-year, fully accredited residency training program to candidates at the second postgraduate year level.

# Emergency Medicine

## Office:

4201 Saint Antoine Street  
University Health Center, 6G  
Detroit, MI 48201  
313-993-2530

Chairperson: Brian J. O'Neil, M.D., F.A.C.E.P., F.A.H.A.

<http://em.med.wayne.edu/>

The Department of Emergency Medicine provides basic life support training and physical diagnosis instruction to M.D. Year 2 students. M.D. Year 3 students receive advanced cardiac life support training and participate in a suture laboratory to learn suture techniques. A mandatory rotation in emergency medicine for all senior students takes place at Detroit Medical Center hospitals or other affiliated hospitals. The fourth year rotation is designed to familiarize the student with:

1. the evaluation, assessment and stabilization of patients with urgent medical problems;

2. invasive and noninvasive procedures routinely used in the emergency department;
3. and management of acutely-ill patients in a timely manner.

Graduate medical education includes two three-year emergency medicine residency programs, based at the Detroit Medical Center (Detroit Receiving Hospital and Sinai-Grace Hospital). Both programs are fully accredited.

# Family Medicine and Public Health Sciences

Office: 3939 Woodward Avenue, 313-577-1421

Chairperson: Jinping Xu, MD, MS

The Department of Family Medicine and Public Health Sciences (DFMPHS) has a strong public health focus with an emphasis on applications of socio-behavioral and medical sciences to community health problems. Public health is a population-based approach to communities that addresses health promotion, disease prevention, restoration and maintenance of health. The skills and scientific approach required in public health include epidemiology, biostatistics, research methodology, health services research, and behavioral sciences. Central to the approach of public health is a focus on community-level influences on health including social, economic, cultural, ethnic, and environmental factors. Public health research methods involve defining selected community problems, proposing studies and solutions, surveillance, evaluating progress, and monitoring the use of resources.

The MPH Program (p. 333) at WSU is accredited by the Council on Education for Public Health (CEPH). The CEPH is an independent agency recognized by the US Department of Education to accredit public health educational programs. The interdisciplinary nature of public health is reinforced in required and elective courses.

# M.D. Medical Education

The DFMPHS faculty is well integrated into the didactic and clinical education of students throughout all levels of medical school. Our faculty participate in the early training of medical students through active teaching and leadership in the Clinical Experiential Clerkship course held during Year 2. In the final clinical years of training, we lead the required Family Medicine Clerkship and sub-intern clerkships, and offer several elective courses including a public health elective.

# Graduate Medical Education

Graduate medical education within the DFMPHS consists of 3 residency programs, each distinctly different in scope and educational mission.

Our 3-year WSU Categorical Family Medicine Residency Program is located in Rochester Hills on the campus of Ascension Providence Rochester Hospital. Our 1-year WSU Transitional Year Residency Program is also located at our Rochester Hills campus at Ascension Providence Rochester Hospital. The program is designed to provide the educational structure and foundation for first year residents to gain experience in a variety of inpatient and outpatient clinical settings in preparation for their terminal categorical programs.

Our 3-year WSU Preventive Medicine Residency Program provides resident training which focuses on clinical preventive medicine and public health sciences for urban populations, underserved populations, and in local correctional facilities.

The DFMPHS maintains a strong research emphasis on improving clinical primary care practice and reducing the burden of health disparities and houses MetroNet, a practice-based research network in Metropolitan

Detroit. The Department has achieved national recognition for its high level of external NIH funding, and last year, the Blue Ridge Report ranked us fifteenth of 150 Family Medicine Departments in the U.S. and second in Michigan.

## Internal Medicine

### *Office:*

University Health Center  
4201 St. Antoine, 2E  
Detroit, MI 48201  
Phone: 313-993-7835  
<https://intmed.med.wayne.edu/>

*Chairperson:* M. Safwan Badr

The major objective of the educational program in internal medicine is to establish a firm conceptual basis for clinical diagnosis and treatment of disease. The exposure to clinical disciplines is graduated throughout each M.D. four year curriculum. During the early years in the M.D. program emphasis is placed on the application of knowledge gained in the basic science courses to an understanding of the biological disorders which accompany human disease. In M.D. Year I, students work with the Department of Internal Medicine through participation in several clinical conferences. During M.D. Year II, the student's attention is directed toward the study of pathophysiologic mechanisms of disease, the principles of clinical diagnosis and the scientific basis of therapeutics. An internal medicine forum is available for students interested in internal medicine as a career. In M.D. Year III and IV emphasis is placed on the student's direct participation in patient care as a member of the health-care team. In Year III the student gains clinical experience through assignment to Wayne State University teaching hospitals; this insures acquaintance with several members of the faculty and to a wide spectrum of medical problems. During Year IV, the student spends a month as an acting intern and a month in an outpatient clinic to gain experience with ambulatory medicine. Elective courses in subspecialties are offered. Students may also choose to pursue laboratory investigative programs under the tutelage of members of the faculty. In addition to formal course work, the student may elect more intensive study as a student-fellow in either clinical or laboratory medicine during the summer recesses. With the expansion of the Internal Medicine faculty, a number of research experiences supported by a variety of national funding agencies are available.

## Neurological Surgery

### *Office:*

4160 John R. Street, Suite 930  
Detroit, Michigan 48201  
Phone: 877-486-7978

<http://neurosurgery.med.wayne.edu> (<http://neurosurgery.med.wayne.edu/>)

The goal of the Department of Neurological Surgery is to acquaint the undergraduate medical student with the problems, both diagnostic and therapeutic, in the field of neurological surgery. This is accomplished by close affiliation with and participation in the neurosciences core curriculum of the freshman and sophomore years. Lectures, conferences and ward rounds are included in this teaching program. In the third year neurosurgical teaching program, the Department curriculum emphasizes the surgical aspects of cerebral and spinal disease and problems. Third year students are made aware of problems best handled by neurosurgical techniques during their trauma and emergency surgery rotation. Fourth year students seeking further study of neurosurgical techniques may elect programs in clinical neurological surgery and neuroscience

research. Detroit Receiving Hospital, Harper University Hospital, Sinai-Grace Hospital, and Children's Hospital of Michigan are the primary clinical facilities for undergraduate instruction by this department.

A seven-year residency training program, (includes one year of research in the laboratory or an enfolded clinical fellowship) in neurological surgery is conducted by the Department and based at the following University-affiliated hospitals: Detroit Receiving, Harper University, Sinai-Grace, and Children's. The research interests of the department are concentrated primarily in the neurological mechanisms involved in ischemic stroke, brain tumors, stereotactic and computer-assisted surgery, neuro-oncology, skull base surgery, aneurysms and AVM clinical studies, traumatic brain injury, and hydrocephalus. The Department of Neurological Surgery operates a microsurgical laboratory for residents and participates in ongoing research projects requiring training in microsurgical techniques and microsurgical anatomy. The residents also participate actively in tumor research at Karmanos Cancer Institute.

## Neurology

*Office:* 8D University Health Center; 313-577-1242  
<https://neurology.med.wayne.edu/>

## M.D. Program Education

The Department of Neurology provides instruction in the first, second, third and fourth years of the medical curriculum. Members participate in the first year basic neuroscience course. In the second year the department is responsible for the clinical neuroscience-neurology course, which emphasizes pathophysiology. During the third year, all students rotate for four weeks through the neurology unit at one of the University-affiliated hospitals, at which time the students receive bedside and outpatient teaching and are given responsibilities in patient management. Clinical electives for students who have completed the required courses are available for interested students.

## Post-Graduate Education

The Wayne State University Neurology Residency Training Program is a fully-accredited program located at the Detroit Medical Center and the Veterans Administration Hospital. The department offers a three-year training program for candidates applying for second year post-graduate level of training. Post-residency fellowships are also available in neuromuscular diseases/EMG, epilepsy/EEG, neurocritical care, multiple sclerosis/neuroimmunology, stroke, clinical neurophysiology, and movement disorders.

## Research Electives

Research electives for medical students are available, either in brief summer rotations or for longer periods taken during elective time. Interested students are encouraged to contact the Department of Neurology.

## Obstetrics and Gynecology

*Office:* 3750 Woodward, Suite 200; 313-993-4514  
<http://obgyn.med.wayne.edu/>

The discipline of obstetrics and gynecology is concerned with the reproductive health of women. This concept implies knowledge that extends from embryology through gerontology. A prime objective of the Department of Obstetrics and Gynecology is to present, and to add to, the current knowledge of the normal physiology and pathology of reproduction.

Major teaching and research efforts in the Department focus on several sub-specialty areas including maternal-fetal medicine, gynecologic

oncology, reproductive endocrinology/infertility, and reproductive genetics. In addition, emphasis is placed on family planning and contraceptive technology, sonographic imaging, psychosexual issues, and computer applications in treatment, diagnosis, and research. The faculty integrates basic science and clinical research into clinical practice.

Medical students gain clinical experience in obstetrics and gynecology in Detroit Medical Center Hospitals: Hutzel Women's Hospital and Sinai-Grace in addition to other affiliated hospitals: William Beaumont, Oakwood, Providence, St. John's, and Henry Ford. The third year clerkship includes an extensive didactic course, as well as in-depth clinical experience. Further, clinical and research opportunities are available in all sub-specialty areas during senior elective periods. Summer student research fellowships are available, both in clinical research within the Department, and in basic research at the C.S. Mott Center for Human Growth and Development, where the Department's basic science laboratories are located.

The graduate program concentrating in the reproductive sciences is included with the Doctor of Philosophy in Physiology (p. 332).

## Ophthalmology, Visual and Anatomical Sciences

*Office:* K-220 Kresge Eye Institute; 313-577-1355  
*Chairperson:* Mark S. Juzych, M.D., M.H.S.A.  
<https://anatomy.med.wayne.edu/>

The department is committed to education, research, and patient care. These activities are conducted primarily in the central campus of the Detroit Medical Center, in the Kresge Eye Institute, under the direction of the department chairperson. The close association of medical practice, research and teaching makes the Kresge Eye Institute an ideal teaching facility. Whether correcting common eye disorders such as cataracts, glaucoma and strabismus, or performing highly technical operations such as vitrectomy, corneal transplants or lens implantations, the medical staff uses the most advanced diagnostic treatment, and surgical methods. The Institute is ideally suited for clinical instruction because it attracts a large number of patients with rare eye diseases, engages in advanced diagnostic techniques, performs a wide range of delicate eye operations and is a center for eye research. Through its affiliation with the University and the Detroit Medical Center, the Institute provides a stimulating learning environment for graduate physicians and medical students.

Each year the Institute selects seven outstanding medical graduates for a three-year residency training program in eye diseases and surgery. The residency program is structured to provide appropriate didactic and clinical teaching and resident support services to exceed all ACGME requirements for resident education. Clinical and research fellowships in vitreoretinal diseases and surgery, glaucoma and ocular trauma are available on a selective basis upon completion of the residency program. The Institute's faculty also provides lectures and clinical training for third and fourth year medical students. The teaching encompasses courses in ophthalmology for residents in family practice and emergency medicine through an elective rotation.

## Orthopaedic Surgery

*Office:* Oakwood Heritage Hospital, 10000 Telegraph Rd., Taylor, MI 48180; 313-375-7218  
<https://orthosurgery.med.wayne.edu/>

The M.D. program in orthopaedic instruction is integrated and designed to introduce the medical student to the entire field of musculoskeletal diseases and injuries. By means of demonstrations, lectures, conferences, clinics and clerkships, the student learns the important specifics of the orthopaedic examination and is exposed to many groups of musculoskeletal problems related to trauma in adults and children. By study of the factual content of common problems in each field, the student's attention is directed to general principles of diagnosis and treatment.

## Otolaryngology, Head and Neck Surgery

*Office:* 5E University Health Center, 4201 St. Antoine; 313-577-0804  
*Chairperson:* Ho-Sheng Lin  
<https://otolaryngology.med.wayne.edu/>

The M.D. program instruction of the Department of Otolaryngology, Head and Neck Surgery is designed to acquaint students with all diseases treated by the modern otolaryngologist. Instruction is given in the methods of examining the ear, nose and throat in the outpatient department. Audiology is included so that the student may properly classify deafness in prescribing appropriate therapy.

Head and neck, and plastic and reconstructive surgery as related to otolaryngology are included in the instructional program. Observation and, at times, assistance at surgical operations offer additional learning opportunities to students. In general, the program stresses the correlation of ear, nose and throat problems to the entire curriculum in medicine and surgery.

## Pediatrics

*Office:* 400 Mack Ave., Ste. 1 East, Detroit, MI 48201; 313-448-9600  
*Chairperson:* Herman Gray, M.D., M.B.A.  
<https://peds.med.wayne.edu/>

Formal teaching by the Department of Pediatrics takes place in the patient units and clinics at Children's Hospital of Michigan during the third year of the medical school program. The aim of the student clerkship is to acquaint the student with the course of normal development, the common variations from normal patterns, and the reaction of the immature to illness. An effort is made to incorporate all aspects of childhood in the allotted time of study in order to have full participation by members of the surgical, orthopedic, and psychiatric staff. An inpatient and outpatient experience is offered that affords the student an opportunity to be exposed to a broad array of pediatric illness. The Department of Pediatrics maintains contact with the student before the clerkship through contribution to the curriculum of basic science courses. The Department also provides an optional program of study during the fourth year.

The Fourth Year Elective Program offers the senior student an opportunity to gain experience in general pediatrics at a greater level of responsibility in patient care. The student assumes an increasing role as a primary caretaker under the supervision of the resident staff in advanced years of pediatric training. Experience in the pediatric sub-specialties is also available to senior students. Thus, they are able to improve the level of their clinical skills and to obtain familiarity with the application of clinical and laboratory research techniques to the investigation of pathophysiology in a wide variety of children. Further information regarding programs may be obtained by writing to the office of the Chairperson of the Department.



# Physical Medicine and Rehabilitation

Tel: 313-745-1218; Fax: 313-745-1063  
<https://pmr-rim.med.wayne.edu/>

The Department of Physical Medicine and Rehabilitation encourages students to acquire knowledge of the patient as a person, not merely of their disease. The student is taught to assess the neuromuscular and musculoskeletal systems and to manage the disorders of these systems. In addition, a concept of rehabilitation is presented which considers not only the disease or injury that leads to chronic disability, but emphasizes the coordination of effective therapies and forces which will ameliorate the social, psychological and vocational problems created by the impairment. Teaching is conducted through lectures, demonstrations, staff conferences and seminars, with the major emphasis upon office practice instruction. Clinical instruction is provided at the Rehabilitation Institute of Michigan, the principal teaching facility of the Department for the PM&R DMC program and at the following institutions: DMC Children's Hospital, Detroit Receiving Hospital, Harper Hospital, Karmanos Cancer Hospital, and Veterans' Administration Hospital.

## Psychiatry and Behavioral Neurosciences

*Office:* Tolan Park Medical Building, Suite 5-A, 3901 Chrysler Service Drive  
*Chairperson:* David R. Rosenberg, M.D.  
<http://psychiatry.med.wayne.edu/>

### M.D. Program Education

The Department of Psychiatry and Behavioral Neurosciences provides M.D. students with an awareness of psychiatric problems as they are experienced in the practice of medicine. The educational mission of the Department is to teach the knowledge base, skills, and professional attributes in psychiatry and behavioral neurosciences for future physicians to practice competently in any medical specialty.

This Department is active in the teaching of the medical student throughout all four years of training. The core curriculum in psychiatry is taught in the second and third year of medical school and includes:

- Year II: Normal development and psychopathology
- Year III: Clinical clerkship and didactic learning

Clinical psychiatry rotations are conducted at Detroit Receiving Hospital, Harper University Hospital, Henry Ford Health System, Providence Hospital, Sinai-Grace Hospital, University Psychiatric Centers, William Beaumont Hospital, and Veterans' Administration Medical Center. These rotation sites provide the student with experiences in a variety of clinical settings, including inpatient, partial hospitalization programs, consultation services, emergency room, and outpatient services. Faculty members also serve as course directors and participate in the teaching of interdisciplinary courses that span the four years of medical school, including clinical medicine (history and communication skills), human sexuality, and behavioral health longitudinal curricula (interpersonal violence, substance use disorders, preventative health and health maintenance).

## Radiology

*Office:* Detroit Receiving Hospital 3L-8, 4201 St. Antoine, Detroit, MI 48201  
<https://radiology.med.wayne.edu/>

M.D. program instruction by this department is directed toward a total integration of the fundamentals of radiology with the basic sciences,

particularly anatomy, physiology, chemistry and pathology. Radiologic instruction is correlated at the M.D. Year I and II levels with other departments. Year III-level instruction is clinically oriented and numerous radiologic electives are offered in Year IV. Various diagnostic imaging techniques such as conventional radiographic procedures; radionuclide imaging, both static and dynamic; ultrasonography; computerized tomography, MR; and digital subtraction radiography are included in both the undergraduate and graduate level of instruction. The pre-clinical program has been designed to orient the anatomy student to normal roentgen anatomy and also to relate this to aspects of physical diagnosis. There is further coordination in anatomy and physiology to emphasize function and in turn relate this to aspects of history taking. In the fields of physiology and physiologic chemistry, radioactive isotope techniques are presented relating particularly to endocrine functions, renal functions and blood formation. Correlated teaching is also carried in gross pathology.

In the clinical years, teaching of diagnostic radiology, radiation therapy, nuclear radiology, computerized tomography, MRI, and ultrasonography is related to total patient care and such teaching is, therefore, predominantly correlated with other clinical departments. The clinical aspects of diagnostic radiology, radiation therapy and radionuclide procedures and techniques are taught during clerkship and in the clinics and various inter-departmental and intra-departmental conferences.

## Surgery

*Office:* 3990 John R., Detroit, MI 48201; 313-745-8778  
*Chairperson:* Donald Weaver  
<https://wsusurgery.com/>

The main objectives of the Department of Surgery are to relate the principles of the basic sciences to clinical practice and to impart the details of patient care in light of modern physiological and pharmacological knowledge. Emphasis is on understanding of the deranged metabolic processes occasioned by surgically treatable disease and physical trauma, the translation of these into recognizable symptoms and signs and the rational correlation of therapy with these basic disturbances. Surgery is taught as only one aspect of patient care and emphasis is placed on the relationship of the surgeon to other personnel who form part of the health care team. As part of their education, students are part of the resident care team and are assigned patients for study.

With the unusually broad spectrum of diseases treatable by surgical methods present in the Wayne State University affiliated hospitals, students have contact with oncological, vascular and gastrointestinal problems. Students obtain a wide clinical experience at Detroit Receiving and Harper University Hospitals. During their third year, they may also select to rotate to one of the other affiliated hospitals such as Henry Ford Hospital, Oakwood Hospital, St. Joseph Mercy Hospital, St. John's Hospital and Medical Center, VA Administration Hospital and William Beaumont Hospital.

Students are encouraged to participate in experimental and clinical research programs with staff supervision during their senior elective periods and summer vacations. The program is designed to provide the student with the opportunity to develop career interests in surgery at an early stage in their education.

## Urology

*Office:* 4201 St. Antoine, UHC-7C Detroit, Michigan 48201; 313-577-5222  
*Chairperson:* Michael L. Cher  
<https://urology.med.wayne.edu/>



M.D. program instruction in the field of urology begins in the M.D. Year I with the physical diagnosis course. Students receive lecture and laboratory instruction on the male genitourinary physical examination. Instruction continues in Year III with a series of lectures. Students receive these lectures as part of their general surgery curriculum. These lectures incorporate the fundamental concepts of the disease processes which affect the genito-urinary system. The lectures attempt to integrate the physiologic and anatomic mechanisms of urological disorders, their clinical presentations, and contemporary treatment strategies and outcomes. Clinical electives in urology are offered to students in their third/junior and fourth/senior years of medical school training. The electives are arranged in four week blocks. Rotations on the urology service can be tailored to the individual student. Students may also spend time in the various office clinics within the Department of Urology to broaden their experience.

# Graduate Programs of the School of Medicine

## Academic Regulations Governing Master's and Doctoral Degrees

Advanced study programs leading to the Doctor of Philosophy and Master of Science degrees are available in the School of Medicine. Their primary purpose is to provide an opportunity for graduate training in preparation for careers in biomedical research including those in academia, industry, biotechnology, and government. In addition, the programs are designed to provide an educational springboard into a wide variety of related careers including those in medicine, intellectual property (patent) law, regulatory affairs, compliance, healthcare management, science advocacy/policy, teaching, scientific writing, clinical and translational sciences, forensics, and environmental affairs, among others.

Graduate students enter a community of team-oriented scholars and are expected to become acquainted with the development of a main area of study and its relationship to other pursuits. Students should develop into independent and self-directed learners and researchers, acquire useful perspectives on the meaning and limitations of exact science, and maintain a balance between practical and abstract intellectual activity. They are expected to draw from and add to the wealth of accumulated knowledge in their chosen discipline. Graduate students work closely with faculty advisors who help plan course schedules and research programs, supervise laboratory training, and help navigate career options.

For complete information regarding the academic rules and regulations of the University, students should consult Academic Regulations (p. 24) of this bulletin. The following additions and amendments pertain to the School of Medicine.

### Admission

Admission to these graduate programs is contingent upon admission to the Graduate School (p. 21). Requests for program-specific information and requirements should be made directly to the program of interest. Mailing address and individuals to contact are cited below.

### Application

Applicants must complete/submit:

1. University Graduate School application;
2. Official transcripts of all undergraduate (and graduate) academic work;
3. Graduate Record Examination scores, verbal, quantitative and analytical writing components.

Individual programs may have additional application requirements, including higher standards for G.P.A. and English proficiency than the Graduate School. Students for whom English is not their native language will be required to demonstrate competency in verbal and written English within the first year of study.

Most study programs are planned for students who begin in the fall semester; however, matriculation may be possible at other times during the year in individual cases.

The recommended procedure for application is:

1. Consult departmental websites and/or contact the appropriate Graduate Officer for additional information and forms relevant to that program;

2. Submit ALL application materials by February 1 for admission to begin study in the fall semester;
3. Earlier applications will be accepted in most cases. Late applications will be evaluated; however, the graduate programs have limited enrollment, and thus late applicants may encounter programs already filled. Most graduate assistantships and fellowships are awarded in the months of February and March; late applicants may have very limited opportunities for this type of financial assistance. Additional financial aid may be available through the Office of Student Financial Aid.

## Master of Science Degrees

Descriptions of individual programs may be found in the departmental sections which follow. Two interdisciplinary programs are offered in addition to the discipline-based courses of study: a master's degree program in basic medical sciences and a master's degree program in medical research. These are described below. General requirements for the Master of Science degree may be found under Master's Degrees (p. ).

## Doctor of Philosophy Degrees

Programs leading to the Doctor of Philosophy degree in the basic medical sciences are under the jurisdiction of the Graduate School of the University. Ph.D. students, admitted to one of the listed graduate programs, typically enroll in the School of Medicine's Interdisciplinary Biomedical Sciences (IBS) core curriculum during their first year. The IBS is a broad-based curriculum involving courses in Interdisciplinary Molecular and Cellular Biology and selected courses in the systems curriculum. Department and program-specific course requirements and additional information may be found in the individual descriptions of each Ph.D. program.

The thirty credit dissertation registration requirement is fulfilled by registering for the courses 9991, 9992, 9993, and 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively) offered under various subject area codes, in consecutive academic year semesters.

## Interdisciplinary Biomedical Sciences (Ph.D.)

The School of Medicine's Interdisciplinary Biomedical Sciences (IBS) curriculum is open only to doctoral students in the School of Medicine. Completion of the Core Curriculum is recommended during the first year of Ph.D. study; it must be completed by the end of the second year. The IBS curriculum includes:

Code	Title	Credits
<b>Foundational Course</b>		
IBS 7015	Interdisciplinary Cell and Molecular Biology	
<b>Two additional courses chosen from the following:</b>		
IBS 7030	Functional Genomics and Systems Biology	
IBS 7050	Molecular Neuropsychopharmacology	
IBS 7090	Biomedical Immunology	
IBS 7100	Biomedical Neuropharmacology	
IBS 7130	Systems Neuroscience: Structure and Function of the Nervous System	
IBS 7140	Foundations of Data Science	
IBS 7320	Protein Structure and Function	
IBS 7330	Advanced Molecular Biology	

Admission of other students requires the consent of the curriculum director.

## Joint M.D. and Ph.D. Program

A joint M.D. and Ph.D. program of study may be designed to provide an opportunity for exceptionally talented students to acquire knowledge and expertise in both research and clinical medicine. By combining and interrelating the Doctor of Medicine and Doctor of Philosophy programs, the dual degree objectives may be accomplished effectively and often in a shorter time than is possible by two separate degree programs completed in sequence. Such a program will prepare the student to assume investigative leadership in medical schools and in institutes for medical research. This program is flexible so that it can be adapted to best suit the student's discipline, needs and objectives.

**Admission:** Students will apply to the joint degree program at the time that they apply to the School of Medicine via the American Medical College Application Service (AMCAS). However, failure to be admitted to the joint degree program will not alter the student's opportunity to be considered for medical admission. In some instances, medical students may be admitted during their first or second year of undergraduate medical school, but this will involve other means of financial support than when he/she has been admitted by a joint process to the M.D-Ph.D. program in the School of Medicine. At the time of acceptance to the joint degree program, students will be required to submit a graduate application. Students interested in a joint degree program may contact the Graduate Programs Office in the School for further information and counseling.

### Degree Requirements

The requirements for the joint M.D./Ph.D. degrees conform to those established for the separate degrees by the School of Medicine, the Graduate School (p. 33), and the individual departments involved.

- Anatomy and Cell Biology (p. 318)
- Basic Medical Sciences (M.S.) (p. 314)
- Biochemistry, Microbiology and Immunology (p. 320)
- Clinical and Translational Science (Bridge Graduate Certificate) (p. 315)
- Genetic Counseling (M.S.) (p. 315)
- Medical Research (M.S.) (p. 316)
- Molecular Genetics and Genomics (p. 323)
- Oncology (p. 325)
- Pathology (p. 329)
- Pharmacology (p. 329)
- Physiology (p. 332)
- Public Health Programs (p. 333)
- Translational Neuroscience (Ph.D.) (p. 335)

## Programs Offered through the Graduate Programs Office

### Basic Medical Sciences (M.S.)

Office: 1128 Scott Hall  
Program Director: George S. Brush, Ph.D.

The Basic Medical Sciences (BMS) program offers a didactic, multidisciplinary (broadly-based), and human biology-oriented curriculum. The BMS program can enhance the academic preparation of individuals holding a bachelor's, master's or professional degree who are seeking

to subsequently matriculate into human or veterinary medical, dental, or pharmacological professional degree programs. The curriculum can facilitate career advancement of individuals employed in the areas of biomedical research and science education. The curriculum is NOT for individuals holding M.D., D.D.S., Pharm.D. or equivalent degrees; such individuals interested in medical or biomedical research are referred to the M.S. in Medical Research program (see below).

The curriculum involves courses from several basic science departments and programs, each one representing a unique discipline within the Wayne State University School of Medicine. At least one BMS CORE course from each of at least four different disciplines is required. The curriculum also has advanced basic medical science electives. The Master of Science in Basic Medical Sciences degree is a Plan B master's essay curriculum that requires an original critical evaluation of a specific topic in current biomedical science commonly based on analysis of current biomedical literature; original experimental research is not required.

### Admission Requirements

**Admission** to the BMS program is contingent upon admission to the Graduate School (p. 21). A minimum of a bachelor's degree or equivalent is required. A major in a biological or chemical science is preferred; applicants with other majors will be considered. Applicants must have completed at least one year of general biology, two years of chemistry (inorganic and organic), and one year of physics at the undergraduate level or above. An earned cumulative Grade Point Average of 3.0 together with strong science grades are required for regular admission. Applications must be submitted online (see url at the end of this paragraph). A complete application requires submission of the basic application form, a statement of purpose, three letters of recommendation, transcripts from all prior academic institutions in which the applicant is/was enrolled, and a recent standardized test score (original or copy): either MCAT, DAT, GRE or PCAT. Copies of transcripts may be submitted for application review; however, the Graduate School will require submission of an official transcript showing degree awarded prior to enrollment.

### Program Requirements

The Master of Science in Basic Medical Sciences is offered only as a Plan B master's degree that requires completion of thirty-four credits in the BMS curriculum and must include a graded Master's essay (BMS 7999).All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

### Required Core Courses

A minimum of four CORE courses, each one from a different basic science discipline/subject area (as reflected in the different two- or three-letter course prefixes), must be chosen from the following (a few alternative Core courses are available with Program Director approval):

Code	Title	Credits
BIO 6000	Molecular Cell Biology I	3
BMB 7010	General Biochemistry Lecture	4
CB 7210	Fundamentals of Cancer Biology	3
IM 7010	Fundamentals of Immunology	2
IM 7020	Fundamentals of Microbiology	2
IM 7030	Molecular Biology of Viruses	2
MGG 7010	Molecular Biology and Genetics	4
PHC 6500	Drugs and the Addictive Process	3
PHC 7010	Pharmacology Lecture	4

PHC 7410	Principles of Toxicology	3
PSL 7010	Basic Graduate Physiology Lecture I	4
PSL 7030	Basic Graduate Physiology Lecture II	4
PYC 7010	Molecular Neuropsychopharmacology	3

## Elective Courses

Elective credits, from selected BMS elective courses, sufficient to complete the thirty-four earned cumulative credit degree requirement must be approved by written consent of the Program Director.

## Plan of Work Requirement

The Plan of Work is developed and filed in association with the Program Director or his/her designee upon the completion of 12 credits. The deadline is specified by the Graduate School and enforced by the Registrar.

## Essay Requirement

BMS 7999 – Essays in Basic Medical Science: Cr. 3

The Essay Advisor, Committee, and essay *topic* are selected with the advice and approval of the BMS Program Director. The committee must be composed of three graduate faculty members, including the Essay Advisor who may also be appointed as the student's academic advisor. The Essay Outline must be approved by the BMS Program Director. The Essay document must be presented to all Committee members for evaluation, approval and final grading. At the discretion of the Essay Advisor and Committee the evaluation may require an oral presentation and defense of the essay.

# Clinical and Translational Science (Bridge Graduate Certificate)

*Office:* School of Medicine Biomedical Graduate Programs, 1128 Scott Hall

The Graduate Certificate in Clinical and Translational Science (Bridge Program) trains M.D./Ph.D. students in the key elements of clinical and translational science. Thus, the curriculum for this certificate includes courses in biostatistics; epidemiology; development of novel clinical and translational methodologies; designing and implementing clinical trials and clinical research; understanding the clinical presentation, diagnosis, management and treatment of patients in the context of cutting-edge research methodologies; adhering to federal regulatory and ethical requirements in conducting clinical and scientific research; and preparing, writing and submitting competitive fellowship and grant applications to national and federal peer-reviewed funding agencies as well as performing research.

Admission to these programs is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313), respectively. Admission is limited to students in the M.D./Ph.D. program. Applicants should file a Change of Graduate Status with the School of Medicine Graduate Program Office and include a very brief statement of purpose for enrolling in this curriculum.

This Graduate Certificate in Clinical and Translational Science requires fifteen credits of course work. Under this Bridge Program, all of the certificate credits may be applied toward the requirements of the M.S. in Medical Research (p. 316). The program is designed for seven to eight years, over the duration of the M.D./Ph.D. program. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees, including a cumulative earned 3.0 g.p.a. in the

courses offered for credit, and Satisfactory ('S') grades in the courses graded Satisfactory/Unsatisfactory (S/U).

## Required Courses

The Graduate Certificate in Clinical and Translational Science requires fifteen credits of courses including:

Code	Title	Credits
FPH 7010	Urban Community Assessment and Planning	1
FPH 7240	Epidemiology	3
MDR 7100	Clinical Research Design	2
MDR 7110	Clinical Field Experience	2
PSL 7710	Disease States and Reproductive Processes (or equivalent course)	1

## Genetic Counseling (M.S.)

*Office:* 2375 Scott Hall; 313-577-6298

*Program Director:* Angela M. Trepanier, M.S., C.G.C.

*Associate Director:* Erin Carmany, M.S., CGC

<https://genetics.wayne.edu/education/ms-genetic-counseling> (<https://genetics.wayne.edu/education/ms-genetic-counseling/>)

The graduate program in Genetic Counseling is located in the Center for Molecular Medicine and Genetics (CMMG) on the School of Medicine campus. Genetic counselors are medical professionals who help people understand and adapt to the medical, psychological and familial implications of genetic contributions to disease. This is achieved through the following: procuring and interpreting family and medical histories to assess the chance of disease occurrence or recurrence; educating about inheritance, testing, management, resources, and research; and providing counseling to promote informed decision-making and adaptation to genetic disease or risk. The practice of genetic counseling requires comprehensive knowledge of human and medical genetics, including genetic and genomic testing, in combination with an appreciation for the psychosocial, ethical, and social issues associated with genetic disorders. It also requires strong critical thinking, psychosocial assessment, and interpersonal communication skills. Genetic counselors generally work as part of a health care team in a variety of clinical settings such as pediatric genetics, reproductive genetics, cancer genetics, inherited metabolic disorders/newborn screening, cardiovascular genetics, and neurogenetics. Genetic counselors also work in many other settings including clinical laboratories, public health departments, universities, advocacy organizations, and public policy organizations. Genetic counseling services may be provided in person, by telemedicine (video-conferencing) or by telephone. In addition to providing genetic counseling services to patients, genetic counselors may have roles in research, genetic/genomic testing, sales and marketing, leadership, advocacy, public policy, and/or education.

The graduate program in genetic counseling is designed to prepare students with the appropriate knowledge base and practical experience to function competently as genetic counselors in a wide array of settings. The curriculum consists of course work in molecular biology, human and medical genetics, embryology, epidemiology, research methods and statistics, the principles, theory, and practice of genetic counseling, ethics, cultural competency, diversity, equity, inclusion, and justice, counseling, and interpersonal communication. In addition, students gain practical experience by doing supervised clinical internships in a broad range of genetics and specialty clinics as well as clinical genetics laboratories. Students are also required to conduct a research project on a relevant clinical or professional topic (modified Plan B). This program is accredited by the Accreditation Council of Genetic Counseling.

# Admission Requirements

Admission to the genetic counseling program is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313), respectively. Applicants must have a 4-year baccalaureate degree, typically with a grade point average of at least 3.0 or equivalent. Undergraduate course work in biology, biochemistry, chemistry, genetics, organic chemistry, statistics and psychology is required. Also required are three letters of recommendation, a written personal statement, transcripts, and a resume that includes information about efforts to explore the profession and counseling advocacy work. Prospective students are strongly encouraged to shadow and/or speak with a genetic counselor, attend a genetic counseling program open house, and/or do other activities that will familiarize them with the field before applying. The genetic counseling program holds open houses 2-3 times per year where potential applicants can learn about the profession by interacting with and hearing presentations from practicing genetic counselors. Advocacy experience is also a prerequisite to admission. Counseling advocacy, which includes but is not limited to crisis counseling (including crisis text hotline), sexual assault or domestic violence counseling, serving as a resident assistant, or facilitating a grief and loss support group, is required. For questions about the suitability of an advocacy experience, please contact the program directors.

The genetic counseling program participates in the Association of Genetic Counseling Program Directors' Genetic Counseling Admissions Match, administrated by National Matching Services, Inc. Only applicants that register to take part in the admissions match are considered for admission.

The Master of Science in Genetic Counseling program is offered as a Master's Degree Plan B (p. 313), requiring a research project. The curriculum includes approximately forty-five credits: thirty-five credits in core course work, six credits in clinical internships, and four credits for the research project (coursework and independent study). Students should contact the Program Director (geneticcounseling@med.wayne.edu) for more details about required courses

First Year		
Fall Semester		Credits
MGG 7010	Molecular Biology and Genetics	4
MGG 7640	Principles of Genetic Counseling	4
MGG 7730	Introduction to Promoting Health Equity in Genetic Counseling	1
MGG 7830	Human Development and Teratology Seminar	1
MGG 7999	Master's Research Project and Direction (Seminar course)	2
FPH 7240	Epidemiology	3
Credits		15
Winter Semester		
MGG 7660	Practical Applications of Genetic Counseling	3
MGG 7740	Theory and Practice of Genetic Counseling	3
MGG 7860	Evaluating the Health Care Literature	1
MGG 7880	Genetic Counseling Seminar	1
MGG 7600	Advanced Human Genetics	3
MGG 8998	Genetic Counseling Internship	1
MGG 7710	Introduction to Medical Genetics	2
Credits		14
Spring/Summer Semester		
MGG 8998	Genetic Counseling Internship (2 internships, 7 weeks each)	1
Credits		1
Second Year		
Fall Semester		
MGG 7741	Advanced Genetic Counseling Theory and Practice	3

MGG 7800	Advanced Medical Genetics	3
MGG 7999	Master's Research Project and Direction (Independent study)	1
MGG 8998	Genetic Counseling Internship (Two 7-week internships)	2
Credits		9
Winter Semester		
MGG 7880	Genetic Counseling Seminar	1
MGG 7881	Senior Seminar in Genetic Counseling	2
MGG 7999	Master's Research Project and Direction	1
MGG 8998	Genetic Counseling Internship (Two 7 week internships)	2
Credits		6
Total Credits		45

## Medical Research (M.S.)

Office: 1128 Scott Hall; 313-577-1455  
Program Director: George S. Brush, Ph.D.

The Master of Science in Medical Research (M.S.M.D.R) program provides a broadly based, multi-disciplinary, human biology-oriented master's level education and requires basic and/or clinical biomedical research training. Admission to the program is available to individuals who have a professional medical (M.D., D.O.), dental (D.D.S.), pharmaceutical (Pharm.D.), or equivalent degree in human health care and who are actively participating in Wayne State University School of Medicine affiliated post-graduate clinical medicine training, or are affiliated faculty members. The M.S.M.D.R program enables individuals to obtain research credentials for entry into an academic medical, dental, or pharmacologic research career, or for individuals already in an academic medical, dental, or pharmacologic career to change their research emphasis.

An additional MSMDR program has been developed for students enrolled in the M.D. program at Wayne State University School of Medicine. The master's portion of this joint M.S.-M.D. program is designed to provide a multi-disciplinary, human biology-oriented education with basic and/or clinical research training. The program will be of value to medical students who wish to include research in their future careers, and will prepare them to understand how concepts, therapies, and technologies are translated from the laboratory to the clinic. Inquiries should be sent to the Program Director.

# Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Applications must be submitted online which allows submission of the applicant's information, statement of purpose, and the three required references. One of the references must be from the prospective thesis advisor who must be a WSU School of Medicine Graduate Faculty member. For application review, a professional applicant must provide the M.S.M.D.R Program transcripts with proof of a degree from a professional degree-granting institution, either medical (M.D., D.O.), dental (D.D.S.), pharmaceutical (Pharm.D.) or equivalent. Copies of transcripts may be submitted for application review; however, the Graduate School will require submission of an official transcript showing degree awarded prior to enrollment. International medical graduates must provide a valid certificate from the Educational Commission for Foreign Medical Graduates. A medical school applicant must be in good standing in the second or third year of the M.D. program at Wayne State University School of Medicine. Students who have completed the Medical Student Summer Research Fellowship are encouraged to apply.



## Program Requirements

The Master of Science in Medical Research is offered only as a Plan A master's program requiring completion of thirty credits, including an eight-credit thesis.

## Courses

For students with professional degrees, a minimum of two courses, each one reflecting a different discipline/subject area (as reflected in the different two or three-letter course prefixes) must be chosen from the following:

Code	Title	Credits
BMB 7010	General Biochemistry Lecture	4
CB 7210	Fundamentals of Cancer Biology	3
FPH 7015	Biostatistics I	3
FPH 7210	Research Methods for Public Health Professionals	3
IM 7010	Fundamentals of Immunology	2
IM 7030	Molecular Biology of Viruses	2
IM 7520	Molecular Mechanisms of Bacterial Pathogenesis	2
MGG 7010	Molecular Biology and Genetics	4
MGG 7091	Scientific Communication	2
PHC 6500	Drugs and the Addictive Process	3
PHC 7010	Pharmacology Lecture	4
PHC 7410	Principles of Toxicology	3
PSL 7010	Basic Graduate Physiology Lecture I	4
PSL 7030	Basic Graduate Physiology Lecture II	4
PYC 7010	Molecular Neuropsychopharmacology	3

The following courses are required:

Code	Title	Credits
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
MGG 7091	Scientific Communication	2

In addition, a minimum of two courses must be chosen, upon consultation with the thesis advisor and program director, that complement the research activities.

## Elective Courses

Elective credits sufficient to complete the degree requirements must be approved by written consent of the Program Director.

**The Plan of Work** is developed by the student in consultation with the prospective thesis advisor and filed with the Program Director. The deadline is specified by the Graduate School and enforced by the Registrar. With the Program Director's approval the student is advanced to candidacy status.

**Thesis Requirement:** Completion of MDR 8999, Master's Thesis Research and Direction, Cr. 8; prereq: M.S. in Medical Research candidacy status, approved thesis outline, consent of advisor, and authorization by M.S.M.D.R Program Director.

**Thesis Advisor:** The advisor is selected with the advice and consent of the Program Director. The Thesis Committee, selected with the advice and consent of the Thesis advisor, must be composed of three graduate faculty members, including the thesis advisor who also serves as the student's academic advisor for the remainder of his/her program. The candidate must prepare an outline of the thesis, obtain signatures of

approval from all Committee members, and file with Program Director for approval.

**Thesis and Defense:** The thesis document must be provided to the Thesis Committee for review prior to the oral defense. The Committee evaluates the thesis document and following the subsequent oral defense determines the MDR 8999 final grade.

# Anatomy and Cell Biology

Office: 8374 Scott Hall; 313-577-1061  
Chairperson: Linda D. Hazlett  
<http://www.anatomy.med.wayne.edu/>

The Anatomy and Cell Biology Program provides training in the study of dynamic biological processes using cellular, molecular, behavioral, and imaging approaches. Faculty members are active in an extensive array of research areas, including the visual sciences, neuroscience, cell and developmental biology, immunology and infectious disease. The department offers two graduate degrees, both of which require the successful completion of courses. For the Ph.D. degree, dissertation research is performed in the laboratory of a faculty member with all requirements generally completed in four to five years. The M.S. degree offers two tracks: Research (Neuroscience or Visual Sciences) and Teaching, either of which can be completed within two years. In addition, students admitted to the School of Medicine (<https://www.med.wayne.edu/>) can pursue M.D./M.S. or M.D./Ph.D. degree, typically completed in five or seven years, respectively. While acceptance to the Ph.D. and M.S. programs is contingent upon admission to the Graduate School (p. 21), applications are submitted directly to the Department of Ophthalmology, Visual and Anatomical Sciences (OVAS).

- Anatomy and Cell Biology (M.S.) (p. 318)
- Anatomy and Cell Biology (Ph.D.) (p. 319)

## Anatomy and Cell Biology (M.S.)

### Admission Requirements

Admission is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313), respectively. Applicants must have an undergraduate degree. A minimum grade point average of 3.0 is required for admission to the M.S. program. An interview with the Graduate Committee Chairperson or designated representative is desirable. The Graduate Record Examination is required for admission. Foreign students must be proficient in English as determined by satisfactory performance on the standardized TOEFL English proficiency examination.

### M.S. Program

The Master of Science in Anatomy and Cell Biology requires a minimum of 32 credits. The program is designed to be a rigorous two-year program, with a comprehensive scholarly emphasis. After completion, the overall experience, knowledge, and skills gained during the program will allow students to apply their newly acquired abilities across a broad range of research and educational settings, as well as support those interested in continuing in a Ph.D. program or health professional school. For those interested in continuing in an M.D. program, the M.S. program has a linkage agreement with WSU School of Medicine that guarantees a medical school interview for those that complete the program with high performance levels (M.S. linkage agreement information)

Students select one of two available tracks of study: either the Research Track or the Education Track. The first year is focused on coursework and the second year emphasizes hands-on development in research or teaching. A written thesis is required for both tracks. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

All M.S. students are required to participate in the seminar series each semester. M.S. students in the research track are required to take Essential Research Practices regardless of program focus (Visual

Sciences or Neuroscience). All students are required to submit a Plan of Work (POW) that is provided by the Office of Graduate Programs at the School of Medicine, within six months of entering the program.

### Research

The Research Track offers specialization in either Neuroscience or the Visual Sciences. Students are provided the opportunity to learn state-of-the-art techniques related to preclinical and clinical research.

Code	Title	Credits
<b>Fall Semester - Year 1</b>		
MGG 7010	Molecular Biology and Genetics	4
ANA 7270	Special Projects in Anatomy	2-3
ANA 7890	Seminar	1
Select one of the following:		
ANA 7055	Biology of the Eye	
ANA 7030	Human Microscopic Anatomy	
ANA 7130	Neuroanatomy	
<b>Winter Semester - Year 1</b>		
ANA 7890	Seminar	1
ANA 7996	Research	1-15
Select one of the following:		
ANA 7065	Mechanisms of Ocular Disease I (required for Vision subdiscipline)	
ANA 7130	Neuroanatomy (required for Neuroscience subdiscipline)	
<b>Fall Semester - Year 2</b>		
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
ANA 8999	Master's Thesis Research and Direction	1-8
ANA 7890	Seminar	1
Optional:		
FPH 7015	Biostatistics I	
ANA 7075	Mechanisms of Ocular Disease II (required for Vision subdiscipline)	
<b>Winter Semester - Year 2</b>		
ANA 8999	Master's Thesis Research and Direction	1-8
ANA 7890	Seminar	1
Optional:		
PYC 7150	Fundamentals of Neuropsychiatric Disorders	

- \* Students interested in the Neuroscience subdiscipline should take at least 2 of the 3 following core courses: ANA 7010, ANA 7030, ANA 7130.
- + Students interested in the Vision Sciences subdiscipline should take the following core courses to enhance their training experience: ANA 7055, ANA 7065, ANA 7075.

### Education

The Education Track provides the opportunity to learn and teach Gross Anatomy, Microanatomy (Histology), Embryology, and Neuroanatomy. Students will participate in both virtual microscopy and human cadaveric dissection, ultimately acquiring expertise and marketable skills in teaching related courses.

Code	Title	Credits
<b>Fall Semester - Year 1</b>		
ANA 7010	Human Gross Anatomy	8
ANA 7030	Human Microscopic Anatomy	4

ANA 7890	Seminar	1
<b>Winter Semester - Year 1</b>		
ANA 7130	Neuroanatomy	4
ANA 7260	Special Dissection	4
ANA 7890	Seminar	1
<b>Spring/Summer Semester - Year 1</b>		
ANA 7260	Special Dissection	2
<b>Fall Semester - Year 2</b>		
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
ANA 7270	Special Projects in Anatomy	4
ANA 7890	Seminar	1
ANA 8999	Master's Thesis Research and Direction	2-4
<b>Winter Semester - Year 2</b>		
ANA 7270	Special Projects in Anatomy	2
ANA 7890	Seminar	1
ANA 8999	Master's Thesis Research and Direction	2-4

## Anatomy and Cell Biology (Ph.D.)

The Department of Anatomy and Cell Biology offers training for the investigation of biological and biomedical problems using molecular, cellular, and morphological approaches. Faculty members are active in a diversity of research areas, including cell and developmental biology, neuroscience, vision research, and immunology. Study for the Ph.D. degree includes dissertation research in the laboratory of a faculty member and can generally be completed in four to five years. Students who have also been admitted as medical students can typically complete both M.D. and Ph.D. degrees in six to seven years.

## Admission Requirements

Admission is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313), respectively. Applicants must have an undergraduate degree. A minimum grade point average of 3.0 is required for admission to the Ph.D. program. An interview with the Graduate Committee Chairperson or designated representative is desirable. The Graduate Record Examination is required for admission. Foreign students must be proficient in English as determined by satisfactory performance on the standardized TOEFL English proficiency examination.

## Academic Scholarship

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

## Assistantships and Research

The Department has graduate research assistantships available for a number of qualified students. All students accepted into the doctoral degree program are considered for financial assistance, and no application forms are necessary for this purpose. Students on assistantships are advised to elect no more than ten credits in a given semester. Two credits are covered during spring/summer semester. All students, whether or not they hold a fellowship or assistantship, are required to assist the graduate faculty in research activities as a component of their educational experience.

## Ph.D. Program

The major emphasis of the Doctoral program is in the acquisition of research expertise designed to prepare graduates to become principal

investigators in their own laboratories as well as educators in the academic setting. During the first two years of study, students learn fundamentals of molecular and cellular biology at the graduate level, as well as receive advanced instruction in the areas of anatomical sciences, vision sciences, and neurosciences. They also perform laboratory rotations that lead to the selection of the permanent advisor who will guide the Ph.D. research project. The third and fourth years are devoted to the completion of the research project in consultation with the advisor and dissertation committee.

This is a 4-step process that includes: 1) The development of a testable hypothesis and research plan; 2) implementation of experiments; 3) critical analysis of the data; and 4) the assembly of the data and conclusions in the format of a Ph.D. dissertation.

The entire program is designed to be completed in 4-years.

Opportunities are provided for the student to become acquainted with the diverse research interests of the faculty and to obtain hands-on experience in selected techniques. Seminars and elective courses broaden the exposure to clinically-relevant areas of research. In the second year, students may select advanced courses in several areas of Anatomy and Cell Biology and choose an advisor to assist in development and implementation of a dissertation research project. The graduate program is flexible and allows for continuing interdisciplinary training; emphasis is placed on designing a program which is tailored to the student's particular goals. In addition to developing research competence, individuals interested in pursuing teaching as part of a career will be able to achieve competence in neuroscience, embryology, and microscopic or gross anatomy.

## First Year Coursework

During the Fall of the first year, all Ph.D. students enroll in the core course of the School of Medicine's Interdisciplinary Biomedical Sciences (IBS) curriculum (IBS 7015) and a course in the Responsible Conduct of Research (GS 0900). Students will also enroll in 1-2 additional courses in order to reach a total of 10 credits. During the Winter of the first year, Ph.D. students can enroll in courses within the OVAS department (ANA courses) or outside of the department. In addition, students will enroll in ANA 7890 to participate in the seminar series and ANA 7270 to complete their laboratory rotations.

## Second Year Coursework

Ph.D. students can enroll in courses within the OVAS department (ANA courses) or outside of the department. Students should consult with their research advisor in selecting courses that will best complement their research efforts and overall education. However, students should note that only courses with 7000 or higher will count towards their 90 total credits needed to complete the Ph.D. program. In addition, all Ph.D. students in our program are required to take one of the following:

Code	Title	Credits
ANA 7010	Human Gross Anatomy	8
ANA 7030	Human Microscopic Anatomy	4
ANA 7055	Biology of the Eye	3
ANA 7130	Neuroanatomy	4

The program offers two subdisciplines: Neurobiology and Vision Science. Ph.D. students interested in the Neurobiology subdiscipline should take one of the following: ANA 7010, ANA 7030 or ANA 7130. Ph.D. students interested in the Vision Science subdiscipline should take ANA 7055. If warranted, students in this subdiscipline can also take ANA 7065 Mechanisms of Ocular Disease I and ANA 7075 Mechanisms of Ocular Disease II.

# Biochemistry, Microbiology and Immunology

Office: 7374 Scott Hall; 313-577-1511

Chairperson: Philip Pellett, Ph.D.

Associate Chair: Ladislau Kovari Ph.D.

Graduate Director: Jeffrey Withey Ph.D.

<http://www.biochemmicroimmuno.med.wayne.edu>

The Department of Biochemistry, Microbiology Immunology serves our community, state, nation, and the world by applying the tools of our disciplines to improving health and wellness for all members of our society, including historically underserved populations.

We are home to students and faculty engaged in the study of areas of modern biomedical science that are fundamental to understanding biological systems relevant to human health. The department was formed in January 2017 by a merger of the long-standing Departments of Biochemistry & Molecular Biology and Immunology & Microbiology.

We provide high quality biomedical science education and opportunities to perform pioneering research. This enables our diverse student body of college undergraduates, medical students, graduate students, and post-doctoral scholars to develop into scientific leaders in the international biomedical arena.

## Our current areas of research include:

**Biochemistry and Molecular Biology** have played major roles in the biological revolution that has transformed our understanding of the fundamental processes of life, and have paved the way for the development of solutions to medical problems that vexed us for centuries. Our biochemical research programs involve the study of molecular mechanisms that underlie biological processes, with an emphasis on the relationship between macromolecular structure and function.

**Immunology** involves the study of defense systems that revolve around discrimination of self from non-self. Recognition of pathogens (non-self) triggers mechanisms that can lead to an elimination of the pathogen. Over-enthusiastic recognition of self can lead to autoimmune diseases such as rheumatoid arthritis. Research in immunology is directed at learning how immune responses are regulated, to enhance protections against pathogens, dampen autoimmunity, and direct the immune system to eliminate cancers.

**Microbiology** revolves around the study of bacteria and viruses, classes of microorganisms that inhabit every ecosystem on the planet and some of which cause a wide range of diseases. Microorganisms are important constituents of our environment, from our personal microbiomes to the complex array of microbial interactions that define nearly all aspects of life on earth. Our microbiology research programs involve investigation of pathogen-host interactions from the levels of populations and individuals, down to the intracellular level. Human and animal microbiomes are also under study to understand their roles in many biological processes.

Our department is home to M.S., Ph.D., and M.D/Ph.D. programs in Biochemistry & Molecular Biology (<https://biochemmicroimmuno.med.wayne.edu/phd-program/>) and Immunology & Microbiology (<https://biochemmicroimmuno.med.wayne.edu/immunologyandmicrobiologyms/phdprograms/>). Our objective is to prepare students for active and successful careers in these exciting and important areas of modern biomedical science. Our students learn how to work independently and collaboratively on complex multidisciplinary biomedical problems, in the context of high standards for research and

scholarship. Our educational programs facilitate the development of critical skills such as hypothesis development, experimental design, robust application of classical and modern methods, data analysis, performing research by high ethical standards, and preparation of data for written and oral presentation in high-quality venues. For decades, our graduate programs have provided excellent foundations for many significant careers in biological research.

- Biochemistry and Molecular Biology (M.S.) (p. 320)
- Biochemistry and Molecular Biology (Ph.D.) (p. 321)
- Immunology and Microbiology (M.S.) (p. 321)
- Immunology and Microbiology (Ph.D.) (p. 322)

## Biochemistry and Molecular Biology (M.S.)

The M.S. degree in Biochemistry and Molecular Biology provides strong research training for students who are interested in a research career in academia, medicine, or industry, in related careers in which first-hand research experience is an asset, or as a prelude to more advanced degrees.

Research interests in the Department of Biochemistry, Microbiology & Immunology are diverse, allowing graduate students to choose from a broad spectrum of topics when picking a research lab. Regular interactions between students and faculty are facilitated with weekly departmental and student seminars, formal collaborations between research groups and a cooperative work environment that promotes discussion of research projects between students of different labs.

Admission to these programs is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313).

The master's degree in Biochemistry and Molecular Biology is offered under Plan A only. Plan A is defined as a minimum of 30 credits, eight of which must be from thesis research, and requires the completion of an approved research thesis. Full-time thesis research can begin in the second semester with advisor approval.

M.S. candidates with less than 16 credit hours of course credits in BMB may transfer to the Ph.D. program with the approval of the Graduate Committee. Such candidates must then take and pass the Ph.D. written qualifying exam. M.S. candidates with more than 16 hours must complete the M.S. degree and reapply to the Ph.D. program if they wish.

All coursework must be completed in accordance with the regulations of the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/degree-certificate-requirements/>) and the School of Medicine (<https://bulletins.wayne.edu/graduate/school-medicine/programs/>). A minimum g.p.a. of 3.0 must be maintained throughout the program, 3.5 is required to maintain the scholarship. Students should strive to be 1st or 2nd author on one peer reviewed publication to validate the quality of their research and to compete effectively in their post-graduate careers.

Successful completion of an original research project is an essential part of the M.S. program and requires a full-time commitment in the summer following Year 1 formal coursework and in Year 2. The applicant for this degree should therefore select an advisor and project as early as possible in the second semester of the program. Option 2 students need this and a Research Plan form before registering for Winter semester. "Plan of Work" and "Petition for Candidacy Degree" forms should be filed by the end of the second semester with the Office of Graduate Studies. Master's students will hear oral presentations by Faculty who are accepting Master's students in the early portion of BMB 7890. They should select



an adviser and committee to initiate research in BMB 7996 Winter and Summer of Year 1, during which time they define their thesis projects.

Applicants for the Master of Science degree must complete the following coursework, including at least eight credits of master's research. Required coursework includes the following:

Code	Title	Credits
BIO 6000	Molecular Cell Biology I	3
BMB 7010	General Biochemistry Lecture	4
BMB 7030	Core Concepts in Technologies in Biochemistry and Molecular Biology	4
BMB 7320	Protein Structure and Function	3
BMB 7330	Advanced Molecular Biology	2
or BMB 7360	Advanced Structural Biology	
BMB 7890	Journal Club (First Year)	1
BMB 7890	Journal Club (Second Year)	1
BMB 7996	Research (First Year)	2
BMB 7996	Research (Second Year)	6
BMB 8999	Master's Thesis Research and Direction	8
<b>Total Credits</b>		<b>34</b>

The completion of an original research project and the preparation and presentation of a thesis are the primary activities of the second year.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

## Biochemistry and Molecular Biology (Ph.D.)

The Department of Biochemistry, Microbiology & Immunology offers a program of coursework and experimental research leading to a doctoral degree in Biochemistry & Molecular Biology. Areas of strength within the department include the molecular biology of gene structure and function, bioenergetics, enzymology, and macromolecular structural biology.

Admission to these programs is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313).

Applicants for the Doctor of Philosophy degree must complete ninety credits, including at least thirty credits in research and dissertation, at least six credits in a minor and the remaining credits distributed between the major and required cognate courses and electives.

In their first year, all Ph.D. graduate students in the School of Medicine's Interdisciplinary Biomedical Sciences (IBS) program (of which we are a part) participate in a combined First Year curriculum, which provides broad-based knowledge in important areas of fundamental biomedical research. Faculty from all departments participate in the teaching, which emphasizes critical discussion of primary and secondary literature. The fall semester covers Molecular and Cell Biology. During the winter semester of the first year, coursework includes two two-credit IBS course offerings chosen by the student, together with two departmental courses that are required for our Ph.D. students: Protein Structure and Function (BMB 7320) and Molecular Biology (BMB 7330).

In addition to these courses, first-year students undertake a series of ten-week laboratory rotations designed as in-depth introductions to the laboratories of their greatest interest. During the first weeks of the fall semester, faculty with slots available in their laboratories participate in a briefing session for incoming students to describe their research

work. Further one-on-one discussion with individual faculty members is also encouraged. Students are urged to gather as much background information as possible before making these choices as they are likely to be a major factor in determining the direction of their entire professional career. Generally, each student does three rotations during the fall and winter semesters, and on the basis of this experience, chooses the laboratory in which they will carry out their doctoral research.

After the first year in the program, students choose courses from anywhere in the University, to focus on their particular interests. Six credit hours in an appropriate minor are required, which need not be confined to coursework offered in the School of Medicine. Favorite choices for the minor include courses in computer science or chemistry. In addition, all students in year 2 and beyond are required to register for Journal Club (BMB 7890) each year. It is expected that most course work will be completed by the end of the second years. A minimum g.p.a. of 3.0 must be maintained throughout the program.

A written comprehensive qualifying exam is administered near the end of the first year, followed by an oral examination by the student's dissertation committee in the area of the proposed thesis research. The dissertation committee should ideally be selected in the Fall semester of Year 2. The committee is composed of the Advisor to the candidate and three other members, including two faculty from the Department of Biochemistry, Microbiology & Immunology whose primary affiliation is with the Biochemistry & Molecular Biology program. Subsequent years are primarily devoted to dissertation research. Each student in the third year and beyond is required to meet with their dissertation committee once a year (twice if the committee calls for it), to discuss progress in their research projects.

Each student must arrange a program in an area of minor concentration with a representative of the department in which he/she plans to minor and preferably with the representative on the doctoral committee. Areas of minor concentration include organic chemistry, physical chemistry, physical-organic chemistry, microbiology or immunology, pharmacology, physiology, biology, and computer science.

The thirty credit dissertation registration requirement is fulfilled by registering for the courses BMB 9991, BMB 9992, BMB 9993, and BMB 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

## Immunology and Microbiology (M.S.)

The M.S. program in Immunology and Microbiology provides education, training and research experience for students interested in research careers in academia, medicine and industry. The program requires completion of a research project and thesis. The program does not provide formal preparation for careers in medical technology or clinical laboratory science that require professional accreditation.

The M.S. in Immunology and Microbiology program is designed to be a full-time educational experience requiring the completion of 33 credits over a two-year period. The first year is comprised of a mixture of coursework and research. The second year is focused primarily on research.



# Admission Requirements

Admission to these programs is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313).

# Program Requirements

Candidates must complete a minimum of thirty-three credits in course work and research in accordance with Plan A (p. ), including the courses listed below.

Code	Title	Credits
BMB 7010	General Biochemistry Lecture	4
or MGG 7010	Molecular Biology and Genetics	
IM 7040	Fundamentals of Research	2
IM 7010	Fundamentals of Immunology	2
IM 7030	Molecular Biology of Viruses	2
IM 7520	Molecular Mechanisms of Bacterial Pathogenesis	2
IM 7890	Seminar	1

# Immunology and Microbiology (Ph.D.)

The Ph.D. program in Immunology and Microbiology educates and trains students for research careers in immunology, microbiology or virology. During the first year of the program, students take courses in cellular and molecular biology as part of the interdisciplinary biomedical sciences curriculum, as well as courses in immunology, microbiology, and virology. Participation in journal clubs, seminars and research rotations in faculty laboratories provide opportunities to become familiar with the faculty and other students. An oral preliminary examination is administered during the summer of the first year. Selection of a dissertation advisor typically occurs after the preliminary examination. Dissertation research begins at this time and continues through the remainder of the program. A dissertation advisory committee is formed by the end of the second year and thereafter meets regularly (at least once every 6 months) with the student to review research progress and course work related to the student's doctoral program. Students typically defend their dissertation near the end of their fifth year. The program also requires submission of a first author publication to a peer-reviewed journal.

Admission to these programs is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313).

Students in the Immunology and Microbiology Department enroll in the School of Medicine's Interdisciplinary Biomedical Sciences (IBS) curriculum during their first year. The curriculum includes:

Code	Title	Credits
IBS 7015	Interdisciplinary Cell and Molecular Biology	6
It also includes selection by the student in conjunction with the Departmental Graduate Officer of courses within the IBS Systems curriculum, including IBS 7090, Fundamentals of Immunology (two credits) and selections from other IBS Systems courses		
IM 7040	Fundamentals of Research	2
IM 7030	Molecular Biology of Viruses	2
IM 7520	Molecular Mechanisms of Bacterial Pathogenesis	2
IM 7996	Research	1-8

Candidates for the doctoral degree must complete ninety credits beyond the bachelor's degree, including thirty credits in doctoral dissertation direction. The thirty-credit dissertation requirement is fulfilled

by registering for IM 9991, IM 9992, IM 9993 and IM 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. For information regarding distribution of credits among major and minor requirements, consult the department.

# Molecular Genetics and Genomics

Office: 3127 Scott Hall; 313-577-5323

Director: Lawrence I. Grossman

<http://www.genetics.wayne.edu> (<http://www.genetics.wayne.edu/>)

Graduate programs in Molecular Genetics and Genomics are administered by faculty in the Center for Molecular Medicine and Genetics (CMMG). Degree programs include the Master of Science, Doctor of Philosophy, and a joint M.D.-Ph.D. program. Molecular Genetics and Genomics graduate students receive broad training in genetics, molecular and cellular biology, genomics, functional genomics, systems biology, bioinformatics, and computational and statistical methods. A major component of their training involves conducting dissertation or thesis research in one of the focus areas of Center faculty. Students receive intensive laboratory training, working closely with faculty on projects at the forefront of biomedical genetics and genomics research.

- Molecular Genetics and Genomics (M.S.) (p. 324)
- Molecular Genetics and Genomics (Ph.D.) (p. 324)
- Molecular Genetics and Genomics AGRADE (p. 323)

## Molecular Genetics and Genomics AGRADE Program

The AGRADE-MGG program is hosted by the Center for Molecular Medicine and Genetics (CMMG) in the School of Medicine. This program is comprised of foundational (core) courses and additional concentration (elective) courses in molecular medicine, genetics and genomics. AGRADE-MGG students obtain academic and applied training in addition to capstone research experiences that integrate learning across their courses. In addition to coursework, this is a research-intensive track that includes research in CMMG faculty laboratories performing wet bench experiments and/or dry bench computational projects as a starting point for a thesis project in year 2 of the program, as well as additional electives. In contrast to regular MGG MS students, who can choose between Plans A and B, only Plan A is available for AGRADE-MGG students. The final thesis will be graded by a thesis committee, which will include an oral thesis defense to the committee.

### Eligibility

Before applying to the program, students should meet with their undergraduate academic advisor to determine if AGRADE-MGG would be a good fit. Student records will be reviewed to determine eligibility, and the academic advisor will assist students in declaring and in guiding their course of study. In general, undergraduate students with declared STEM majors will be eligible to apply for AGRADE-MGG status in the semester during which they expect to complete 90 credits. All AGRADE-MGG applications will be reviewed and prioritized for admission in the Fall semester of each year by the CMMG graduate recruitment committee. Acceptance to the AGRADE-MGG program will be competitive; thus, not all students who meet the minimum criteria will be admitted.

Eligibility criteria are:

Code	Title	Credits
MAT 2010	Calculus I	4
CHM 1100 & CHM 1130 or CHM 1125	General Chemistry I and General Chemistry I Laboratory General Chemistry I for Engineers	4
CHM 1150	General Chemistry II Laboratory	1
CHM 1240	Organic Chemistry I	4

or BME 4010	Engineering Physiology Laboratory	
BIO 3100	Cellular Biochemistry	3
or BME 2050	Introduction to Anatomy and Physiology for Biomedical Engineers	
or CHM 5600	Survey of Biochemistry	
or CHM 6620	Metabolism: Pathways and Regulation	
At least one of the following:		
PHY 2130 & PHY 2131	Physics for the Life Sciences I and Physics for the Life Sciences Laboratory	
PHY 2140 & PHY 2141	Physics for the Life Sciences II and Physics for the Life Sciences Laboratory	
PHY 2170 & PHY 2171	University Physics for Scientists I and University Physics Laboratory	
PHY 2175	University Physics for Engineers I	
PHY 2180 & PHY 2181	University Physics for Scientists II and University Physics Laboratory II	
PHY 2185	University Physics for Engineers II	

90 credits undergraduate coursework

Undergraduate GPA of 3.6 or higher in a STEM BS major

Cumulative GPA of 3.5 or higher (students with a GPA of 3.3 – 3.49 considered case-by-case)

Applications must include:

- personal statement detailing interest in the AGRADE-MGG program, career goals, specific motivations and potential mentoring faculty members;
- academic record and suitability to join the AGRADE-MGG track;
- two references from connected faculty detailing the student's capacity for graduate study.

### Requirements

Upon admission to this accelerated track, undergraduate students complete a minimum of 3 and a maximum of 16 (3-16) credits of approved AGRADE-MGG graduate level courses.

AGRADE-MGG graduate level courses can be used to complete baccalaureate degree requirements and fulfill the initial phase of study toward the MS-MGG degree, provided students perform well in these courses (B grade or higher) and apply to MS-MGG upon graduation with their baccalaureate degree. For courses in which both undergraduate and graduate students participate, AGRADE-MGG students will be held to the course standards required of graduate students.

Explicit in the path to an MS-MGG degree using the AGRADE-MGG mechanism is the requirement that students must complete a minimum of 34 credits of graduate level courses to earn a MS-MGG degree. Thus, courses listed on a student's undergraduate transcript at the time of application to the AGRADE-MGG program cannot be used for credit transfer into the AGRADE-MGG curriculum. Nonetheless, specified undergraduate courses will be considered (B grade or higher) for waiving the requirement to take mandated core AGRADE-MGG courses. In such cases, students must take approved AGRADE-MGG elective credits equivalent to the number of the waived graduate level credits. Further, specified undergraduate courses taken by AGRADE-MGG students can only stand in lieu of equivalent core MGG graduate courses (with a B or higher grade) if an equivalent number of AGRADE-MGG electives are taken.

Upon acceptance into the MS-MGG program, AGRADE-MGG courses will be treated as if they are graduate credits transferred from a graduate program at another university. The remaining graduate level credits required for a

Masters degree (minimum of 34) will be earned in the usual manner within the MS-MGG program.

Only Plan A is available for AGRADE-MGG students.

# Molecular Genetics and Genomics (M.S.)

## Admission Requirements

Admission to the Molecular Genetics and Genomics graduate programs is contingent upon admission to the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/admission/>) and the graduate programs of the School of Medicine (<http://bulletins.wayne.edu/graduate/school-medicine/programs/>). Applicants for the M.S. program must have an undergraduate degree with a major in biology or related science. Students with backgrounds in mathematics or computer science are also encouraged to apply, as are students with significant research experience. Applicants should submit a personal statement, resume, transcript and have three letters of recommendation sent directly to the Program. The Graduate Record Examination is not required, but is recommended. International students must be proficient in English and demonstrate a satisfactory performance on the TOEFL English proficiency examination. Members of the admissions committee will interview select applicants.

## Program Requirements

The Plan A MS degree requires completion of Master's Thesis Research and Direction (MGG 8999 (<http://bulletins.wayne.edu/search/?P=MGG%208999>), Cr. 8), which includes original research and writing and defense of a thesis. The Plan B MS degree requires completion of Master's Essay in Molecular Genetics and Genomics. The MS degree requires 34 credit hours to graduate. Students in the MS program enroll in the following courses.

Code	Title	Credits
MGG 7010	Molecular Biology and Genetics	4
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
FPH 7015	Biostatistics I	3
MGG 7015	Introduction to Genetics	2
MGG 7030	Functional Genomics and Systems Biology	2
MGG 7050	Bioinformatics: theory and practice	3
MGG 7091	Scientific Communication	2

Elective courses in Molecular Genetics and Genomics

Code	Title	Credits
MGG 7020	Metabolism and Disease	2
MGG 7400	Molecular Biology of Cellular Signalling	2
MGG 8010	Quantitative Data Analysis for Biological and Medical Sciences	2
MGG 8680	Advanced Topics in Molecular Genetics and Genomics	1-3
MGG 8770	Molecular Biology of Mitochondrial Disease	2

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

# Molecular Genetics and Genomics (Ph.D.)

## Admission Requirements

Admission to the Molecular Genetics and Genomics graduate programs is contingent upon admission to the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/admission/>) and the graduate programs of the School of Medicine (<http://bulletins.wayne.edu/graduate/school-medicine/programs/>). Applicants must have an undergraduate degree with a major in biology or related science. Students with backgrounds in mathematics or computer science are also encouraged to apply, as are students with a Master's degree and significant research experience. A minimum grade point average of 3.0 from the most recent degree is required. Applicants should submit a personal statement, resume, transcript and have three letters of recommendation sent directly to the Program. The Graduate Record Examination is not required, but is recommended. International students must be proficient in English and demonstrate a satisfactory performance on the TOEFL English proficiency examination. Members of the admissions committee will interview select applicants.

## Assistantships and Research

Competitively awarded assistantships or fellowships are available to fund students during their studies. All students accepted into the doctoral degree program are considered for financial assistance, and no application forms are necessary for this purpose. All students, whether or not they hold a fellowship or an assistantship, are required to assist the graduate faculty in research and teaching activities as a component of their educational experience.

## Program Requirements

Ph.D. students in the graduate program in molecular genetics and genomics enroll in the School of Medicine's Interdisciplinary Biomedical Sciences (IBS) curriculum during their first year. The IBS curriculum includes:

Code	Title	Credits
Required IBS courses		
IBS 7015	Interdisciplinary Cell and Molecular Biology	6
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
Required courses in Molecular Genetics and Genomics		
FPH 7015	Biostatistics I	3
MGG 7015	Introduction to Genetics	2
MGG/IBS 7030	Functional Genomics and Systems Biology	2
MGG 7050	Bioinformatics: theory and practice	3
MGG 7091	Scientific Communication	2
MGG 7460	Research Training in Molecular Biology and Genetics	1-8
MGG 7600	Advanced Human Genetics	3
Elective courses in Molecular Genetics and Genomics		
MGG 7020	Metabolism and Disease	2
MGG 7400	Molecular Biology of Cellular Signalling	2
MGG 8010	Quantitative Data Analysis for Biological and Medical Sciences	2
MGG 8680	Advanced Topics in Molecular Genetics and Genomics	1-3
MGG 8770	Molecular Biology of Mitochondrial Disease	2

Elective and advanced topics courses will be selected to meet student needs. The program will enable the student to demonstrate a basic understanding of molecular genetics and genomics, in order to pass a general examination for candidacy for the Ph.D. degree.

**Dissertation:** Thirty credits in dissertation research are required in the Ph.D. program. This requirement is fulfilled by registering for the courses MGG 9991, MGG 9992, MGG 9993, and MGG 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. Students must write an original research dissertation, have it approved by a dissertation committee, and present it in a public defense.

**Academic Scholarship:** All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

## Oncology

### *Cancer Biology Program*

*Office:* Louis M. Elliman Building, 421 E. Canfield Ave, Room 3217; 313-578-4302

*Program Director:* Larry H. Matherly

*Website:* <http://cancerbiologyprogram.med.wayne.edu/>

### *Medical Physics Program*

*Office:* Gershenson Radiation Oncology Center, 4201 St. Antoine Boulevard, 1D-UHC: 313-576-9624:

*Program Director:* Jay Burmeister

*Website:* <http://medicalphysics.med.wayne.edu/> (<http://www.medicalphysics.med.wayne.edu/>)

- Cancer Biology (M.S.) (p. 325)
- Cancer Biology (Ph.D.) (p. 326)
- Medical Physics (M.S.) (p. 328)
- Medical Physics (Ph.D.) (p. 328)
- Medical Physics (DMP) (p. 327)
- Medical Physics (Graduate Certificate) (p. 327)

## Cancer Biology (M.S.)

The MS program in Cancer Biology offers a strong didactic and laboratory curriculum in cancer biology with a major focus on molecular oncology. Our goal is to provide intensive research training for students who are interested in a career in academia, medicine, industry, or related careers in which first-hand research experience is an asset. Research interests in the Department of Oncology are diverse and dynamic, allowing students to choose from a broad spectrum of topics for their research thesis. Students are encouraged to attend weekly departmental seminars, Grand Rounds presentations and annual symposia. These regular interactions between students and faculty help our students develop oral communication and collaboration skills for future success.

## Admission Requirements

Admission to the MS program is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (<http://bulletins.wayne.edu/graduate/school-medicine/programs/>). Qualified applicants must have a BS or BA degree from an accredited college or university, preferably with a major in biology, chemistry, physics, or a closely related discipline. A complete application includes the basic application form, personal statement, official transcripts from previous institutions, and three letters of reference.

International students must be proficient in English as determined by satisfactory performance on the Test of English as a Foreign Language (TOEFL) examination. TOEFL scores should be reported to Wayne State University using institution code 1898. Applications must be submitted online by April 1<sup>st</sup>. Graduate School Admissions policies can be found at the Office of Graduate Admissions (<https://gradschool.wayne.edu/admissions/>).

## Contact Information

Administrative Office for the MS Program in Cancer Biology  
Department of Oncology  
Wayne State University School of Medicine  
421 E Canfield Street  
Detroit, MI 48201

Tel: 313-578-4302

Email: [danieln@karmanos.org](mailto:danieln@karmanos.org)

The master's degree in Cancer Biology is offered under Plan A only. A minimum of 30 credits, eight of which must be from thesis research, and the completion of an original research project are required to receive a MS degree. The coursework includes 17 credits of compulsory courses and 5 credits of elective courses (listed below). A minimum GPA of 3.0 must be maintained throughout the MS program. Students should select an advisor and committee as early as possible in the second semester of year 1 to begin full time thesis research. Students should strive to publish one peer-reviewed paper as first or second author to demonstrate the quality of their research.

Code	Title	Credits
<b>Required Courses</b>		
MGG 7010	Molecular Biology and Genetics	4
BIO 6000	Molecular Cell Biology I	3
CB 7210	Fundamentals of Cancer Biology	3
CB 7500	Introduction to Cancer Biostatistics	2
CB 7510	Journal Club/Seminar (Max. of 2 credits over the course of the program.)	2
CB 7710	Individual Studies in Cancer Biology	2
CB 7800	Rigor and Reproducibility in Cancer Biology	1
<b>Elective Courses</b>		
Select 5 credits from the following:		5
CB 7300	Special Topics in Cancer Biology	
PHC 7650	Advanced Topics in Pharmacology	
PSL 7880	Special Problems in Physiology	
<b>Thesis course</b>		
CB 8999	Master's Thesis Research and Direction	8
<b>Total Credits</b>		<b>30</b>

## Cancer Biology (Ph.D.)

Historically, researchers involved in cancer biology research have focused on a particular field in biology or medicine relating to alterations in fundamental biological processes that result in malignancy, progression to fatal metastatic disease, or success or failure of therapy. However, continued advances in cancer diagnosis and treatment require scientists to have a greater specialization in the biology of cancer while, at the same time, exposure to a host of disciplines, ranging from biochemistry to cell biology and immunology, and to state-of-the-art cell biology and molecular biology methods. The Cancer Biology Graduate Program at the Wayne State University School of Medicine and the Barbara Ann Karmanos Cancer Institute is dedicated to providing an outstanding training experience in the rapidly evolving field of cancer research. Our philosophy is that to train the next generation of cancer researchers requires a strong interdisciplinary graduate curriculum with a major focus on the biology of cancer, and opportunities to regularly interact with clinicians engaged in cancer diagnosis and treatment. The goal is to develop scientists with capacities for critical scientific thinking needed to conduct original research as independent cancer investigators. The Ph.D. program consists of formal course work which provides a comprehensive education in the basic concepts, along with solid training in the core disciplines, that serve contemporary cancer research. Graduates gain a broad understanding of the fundamental principles that underlie this diverse and dynamic field with in-depth knowledge in their dissertation discipline. An integral part of the training experience involves opportunities to develop written and oral communication skills essential to future success as a cancer researcher.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the graduate programs in the School of Medicine

(p. 313). Applicants to this program should have a background in one of the chemical or biological sciences; applicants with other backgrounds will be considered for admission depending on their competence related to specific areas of interest within the program. Admission is based on previous academic accomplishments, as documented by a transcript of a degree in-progress or a posted official transcript of a completed degree. A minimum 3.0 grade point average is required although students typically have averages well in excess of this minimum. A statement of purpose, three letters of recommendations and a personal interview are required for admission. Applicants with previous research experience are strongly encouraged to apply and a description of their research experience should be provided. International students must be proficient in English, as determined by satisfactory performance on the English proficiency examination. Applicants should consult the Graduate School's website for details on demonstrating English proficiency (<https://gradschool.wayne.edu/admissions/english-proficiency/>).

**Curriculum:** Students in the Cancer Biology Graduate Program enroll in the School of Medicine's Interdisciplinary Biomedical Sciences (IBS) curriculum during their first year. The IBS curriculum includes IBS 7015, Interdisciplinary Molecular and Cellular Biology. Additional courses are selected by the student in conjunction with the Departmental Graduate Director. In addition, students enroll in CB 7210, Fundamentals of Cancer Biology.

The graduate education of each cancer biology student is tailored to his/her specific interests and research requirements. Previous educational experience is recognized so as to permit the student to progress as rapidly as possible. Since the program requires a broad understanding of cancer biology, a core curriculum is required including thirty credits from the following:

Code	Title	Credits
<b>Required Courses and Research</b>		
CB 7130	Clinical Aspects of Cancer Biology	1
CB 7210	Fundamentals of Cancer Biology	3
CB 7700	Recent Developments in Cancer Biology (Journal Club (6 req.))	1
CB 7710	Individual Studies in Cancer Biology (rotation (3 req.))	1-3
CB 7800	Rigor and Reproducibility in Cancer Biology	1
CB 7890	Seminar in Cancer Biology (6 req.)	1
IBS 7015	Interdisciplinary Cell and Molecular Biology	6
Select two Biomedical Electives: Cr. 2 (each)		4
<b>Elective Courses</b>		
Select a minimum of eight credits from the following:		8
CB 7220	Molecular Biology of Cancer Development	
CB 7240	Principles of Cancer Therapy	
CB 7300	Special Topics in Cancer Biology	
CB 7410	Cancer Immunology and Immunotherapy	
CB 7430	Cancer Epidemiology	
CB 7460	Mechanisms of Neoplasia: Alterations to Cellular Signaling	
CB 7600	Applied Cancer Biostatistics	

In addition to the required courses, a number of advanced cancer biology courses are offered from which students choose a minimum of eight credits, providing the total in required coursework. A number of other courses are available to allow students to specialize in a specific research discipline.

During the second year of study, students submit a "Plan of Work" which documents the academic curriculum leading to the Ph.D. It is expected



that the majority of the didactic course work will be completed during the first and second years of Ph.D. study. A written comprehensive qualifying exam is administered in the late spring of the first year of study, followed by an oral comprehensive exam of the proposed dissertation research in the spring of the second year. Ph.D. candidacy is conferred upon successful completion of the oral comprehensive exam. During the summer of the first year, a month long clinical rotation is required (CB 7130) during which graduate students "round" with oncologists treating cancer patients in the Karmanos Cancer Hospital. The third and subsequent years are primarily devoted to dissertation research. Up to forty-five credits of general research, including thirty credits of dissertation research during consecutive semesters (see below) will complete the Graduate School requirements for the Ph.D. degree.

### Dissertation Research

An applicant for the Doctor of Philosophy degree must satisfactorily complete at least ninety credits, including thirty dissertation research credits in CB 9991, CB 9992, CB 9993, and CB 9994 during consecutive semesters. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees. For information regarding distribution of credits among major and minor requirements, consult the department.

To receive the Ph.D., students must successfully defend the dissertation research and complete a publishable research project under the guidance of a faculty mentor. In addition to traditional classroom learning, there are many additional educational opportunities available to our students including seminars by nationally/internationally renowned scientists both within and outside the cancer center, special non-credit courses, fellowship and grant writing, and research workshops and scientific conferences.

**RESEARCH:** Outside of the required coursework and written and oral comprehensive exams, the bulk of Ph.D. study involves independent laboratory or population-based research leading to results of publishable caliber. The Cancer Biology Graduate Program offers research opportunities with outstanding faculty in many areas of contemporary cancer biology including cancer therapeutics, metastasis, tumor microenvironment, breast cancer biology, carcinogenesis, cancer genetics, population studies, and cancer immunology. Students complete three research rotations under the guidance of Cancer Biology faculty during the first year of study (two in the fall and one in the winter semester), after they choose their dissertation mentor. Dissertation research mentors are selected based on students' research interests and the research rotation experiences. Since scientific research is open-ended, the amount of time required for completion of a defensible dissertation leading to the Ph.D. cannot be predicted, although typically the Ph.D. degree is conferred within four to five years. A written dissertation and a final oral defense of the dissertation research to the Dissertation Research Committee are requirements for conferring the Ph.D. degree in Cancer Biology. There is an additional requirement of two research publications (one as first author) based on the dissertation research for receipt of the Ph.D. degree.

**FINANCIAL SUPPORT:** All students accepted into the program are considered for financial assistance; a specific application is not necessary. Students receiving assistantships are permitted to enroll in ten credits hours per Fall and Winter semester, and two credit hours during the Spring/Summer semester. Financial support for the training program in Cancer Biology is derived from University fellowships, traineeships supported by training grants from the National Cancer Institute, faculty grants, and individual graduate fellowships.

## Medical Physics (D.M.P.)

Medical Physics is an applied branch of physics concerned with the application of the concepts and methods of physics to the diagnosis and treatment of human disease. Medical Physicists participate in clinical service and consultation, research and development, and education in the areas of radiation oncology, diagnostic radiology, nuclear medicine, and health physics. The Department of Oncology offers courses of study leading to a Master of Science degree, a Doctor of Philosophy degree, a Professional Doctorate degree, or a Graduate Certificate in Medical Physics. Through courses, seminars, laboratories, research experiences, and clinical internships, the Medical Physics programs provide education and clinical training in the physics of Diagnostic Radiology, Nuclear Medicine, and Radiation Oncology.

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the graduate programs in the School of Medicine (p. 313). A bachelor's degree in physics or a physical science is the preferred background for students entering these programs, although candidates with degrees in other scientific or technological specialties may be accepted provided they have an adequate education in physics and mathematics. Applicants with incomplete physics and/or mathematics backgrounds will be required to complete their preparation in these areas before acceptance into a program.

The Professional Doctorate (D.M.P.) program requires ninety credits beyond the baccalaureate including thirty credits of clinical residency in Radiation Oncology Physics. The thirty credit clinical requirement is fulfilled by registering for the courses ROC 9996, ROC 9997, ROC 9998, and ROC 9999 (Radiation Oncology Physics Clinical Rotation I, II, III, and IV, respectively), in consecutive academic year semesters.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

## Medical Physics (Graduate Certificate)

Medical Physics is an applied branch of physics concerned with the application of the concepts and methods of physics to the diagnosis and treatment of human disease. Medical Physicists participate in clinical service and consultation, research and development, and education in the areas of radiation oncology, diagnostic radiology, nuclear medicine, and health physics. The Department of Oncology offers courses of study leading to a Master of Science degree, a Doctor of Philosophy degree, a Professional Doctorate degree, or a Graduate Certificate in Medical Physics. Through courses, seminars, laboratories, research experiences, and clinical internships, the Medical Physics programs provide education and clinical training in the physics of Diagnostic Radiology, Nuclear Medicine, and Radiation Oncology.

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the graduate programs in the School of Medicine (p. 313). A bachelor's degree in physics or a physical science is the preferred background for students entering these programs, although candidates with degrees in other scientific or technological specialties may be accepted provided they have an adequate education in physics and mathematics. Applicants with incomplete physics and/or mathematics backgrounds will be required to complete their preparation in these areas before acceptance into a program. Applicants for the Graduate Certificate are required to have a Ph.D. in physics or related discipline prior to admission.

The Graduate Certificate requires a Ph.D. in Physics or related science to be eligible for application and requires completion of 19 graduate credits of didactic coursework. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

## Medical Physics (M.S.)

Medical Physics is an applied branch of physics concerned with the application of the concepts and methods of physics to the diagnosis and treatment of human disease. Medical Physicists participate in clinical service and consultation, research and development, and education in the areas of radiation oncology, diagnostic radiology, nuclear medicine, and health physics. The Department of Oncology offers courses of study leading to a Master of Science degree, a Doctor of Philosophy degree, a Professional Doctorate degree, or a Graduate Certificate in Medical Physics. Through courses, seminars, laboratories, research experiences, and clinical internships, the Medical Physics programs provide education and clinical training in the physics of Diagnostic Radiology, Nuclear Medicine, and Radiation Oncology.

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the graduate programs in the School of Medicine (p. 313). A bachelor's degree in physics or a physical science is the preferred background for students entering these programs, although candidates with degrees in other scientific or technological specialties may be accepted provided they have an adequate education in physics and mathematics. Applicants with incomplete physics and/or mathematics backgrounds will be required to complete their preparation in these areas before acceptance into a program.

The Master of Science with a major in Medical Physics is offered under Plan B as defined by the Graduate School. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

## Medical Physics (Ph.D.)

Medical Physics is an applied branch of physics concerned with the application of the concepts and methods of physics to the diagnosis and treatment of human disease. Medical Physicists participate in clinical service and consultation, research and development, and education in the areas of radiation oncology, diagnostic radiology, nuclear medicine, and health physics. The Department of Oncology offers courses of study leading to a Master of Science degree, a Doctor of Philosophy degree, a Professional Doctorate degree, or a Graduate Certificate in Medical Physics. Through courses, seminars, laboratories, research experiences, and clinical internships, the Medical Physics programs provide education and clinical training in the physics of Diagnostic Radiology, Nuclear Medicine, and Radiation Oncology.

Admission to this program is contingent upon admission to the Graduate School (p. 21) and the graduate programs in the School of Medicine (p. 313). A bachelor's degree in physics or a physical science is the preferred background for students entering these programs, although candidates with degrees in other scientific or technological specialties may be accepted provided they have an adequate education in physics and mathematics. Applicants with incomplete physics and/or mathematics backgrounds will be required to complete their preparation in these areas before acceptance into a program.

The Ph.D. requires ninety credits beyond the baccalaureate including thirty credits of dissertation direction. The thirty credit dissertation registration requirement is fulfilled by registering for the courses

ROC 9991, ROC 9992, ROC 9993, and ROC 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. The dissertation must be based on original research under the direction of a graduate faculty advisor.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

# Pathology

Office: 9374 Scott Hall; 313-577-1102  
<http://www.pathology.med.wayne.edu>

The discipline of pathology is a broadly based investigation of all aspects of the diseases that affect living systems. This includes the study of the underlying causes of disease, as well as the molecular and cellular mechanisms of the disease process. The goal of our Ph.D. program is to train students to be creative and successful scientists with a solid understanding of clinically relevant disease processes. Although broadly based, our Ph.D. program has a particular focus on the molecular and cellular mechanisms of cancer and metabolic diseases.

In the first semester, Pathology Ph.D. students join the first year Ph.D. students from all the Ph.D. programs at the medical school to take IBS 7015 during the first semester. In the subsequent semesters, each student follows a unique individualized plan of study designed take into account previous educational experience, individual interests, and the student's thesis project research area. The program consists of a selected electives, small number of required courses, several research rotation projects, a qualifying examination, and a doctoral dissertation based on new and significant research findings.

- Pathology (Ph.D.) (p. 329)

## Pathology (Ph.D.)

### Admission Requirements

Admission to these programs is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313), respectively. The Department admits students with superior records of academic achievement holding either a bachelor's or master's degree. Applicants must have an undergraduate g.p.a. above a 3.0 and international students must show proficiency in English with a minimum TOEFL score of 100. Although there are no specific requirements, significant consideration will also be given to an applicant's area of undergraduate study, the amount of research experience, and Graduate Record Examination (GRE) scores.

### Academic Scholarship

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

### Program Requirements

The Doctor of Philosophy degree requires the completion of ninety credits, including at least thirty credits in research and dissertation. Students must follow the general doctoral degree requirements of the Graduate School (p. ) and the School of Medicine (p. 313). The thirty credits of doctoral dissertation research are fulfilled by registering for PTH 9991, PTH 9992, PTH 9993, and PTH 9994 in consecutive academic year semesters. Other courses are arranged to meet the specific needs and interests of each student. At the end of the second year of study, students are required to take a qualifying exam to demonstrate a basic understanding of basic molecular and cellular biology, pathology, and their chosen specific area of research. Doctoral thesis research is conducted in the laboratory of one of the Pathology faculty members.

# Pharmacology

Office: 6374 Scott Hall; 313-577-1580  
Chairperson: Sokol Todi  
<http://www.pharmacology.med.wayne.edu/>

The discipline of pharmacology is concerned with all aspects of the effects of drugs and chemicals on living systems. The field ranges from investigations at the molecular level to population studies on a global level. Drug development and evaluation make up an important part of pharmacology, but the field also includes the use of drugs as tools to probe the functions of macromolecules, cells, organs and even whole animals, and investigation of the harmful effects of chemicals on cells, organs and animals (toxicology). The breadth of interests encompassed by pharmacology provides excellent opportunities for individuals with strong interests and training in biology or chemistry to apply their knowledge to the understanding of fundamental biological processes.

- Pharmacology (M.S.) (p. 329)
- Pharmacology (Ph.D.) (p. 330)

## Pharmacology (M.S.)

*An admissions moratorium is currently in effect for this program.*

### Admission Requirements

Admission to the Master of Science with a major in Pharmacology and concentration in Applied Pharmacology and Environmental Xenobiotics program is contingent upon admission to the Graduate School (p. 21). A bachelor's degree or equivalent is required, with a major in biological, chemical, physical, or computer science. An overall GPA of 3.0 is strongly preferred. Application requirements include transcripts from academic institutions attended, a statement of purpose, and three letters of recommendation. The Graduate Record Examination (GRE) is *not* required. International students must demonstrate proficiency in English as determined by satisfactory performance on the standardized TOEFL exam or other appropriate exams (this will be waived in the case of international students coming from countries offering their coursework in English).

### Academic Scholarship

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

### Program Requirements

Graduation requirements include the successful completion of 33-34 credits in the Applied Pharmacology and Environmental Xenobiotics program with a minimum overall grade point average of 3.00. Full-time students can readily complete all requirements for the program degree within 2 years. Some students (such as those currently employed) may choose to enroll on a part-time basis. In any case, all degree requirements must be completed within 6 years of commencing the program.

All incoming The Applied Pharmacology and Environmental Xenobiotics program students will be required to successfully complete online courses in Lab Biosafety, Communicating Research Findings, and Responsible Conduct of Research, as offered through the Collaborative Institutional Training Initiative (CITI) Program, followed by a Responsible Conduct course offered by the Graduate School. These are 0-credit courses.

Plan A and Plan B options require submission of a Plan of Work developed in consultation with the Program Director during the first

year. Plan A requires subsequent completion of a thesis based on original research, under the direction of an Advisor and two additional committee members are chosen from among PHC faculty members with Graduate Faculty status. Plan B requires completion of an Essay based on a scholarly review of the relevant literature, under the direction of an Advisor and two additional departmental committee members with Graduate Faculty status. The thesis or essay Advisor will be selected during the Winter semester of year 1. Students' progress toward completion of their theses or essays will be monitored and certified by their committees twice-yearly. The Program Director will monitor academic progress in coursework relative to the Plan of Work.

### Plan A Curriculum (34 credits)

Code	Title	Credits
<b>Required courses</b>		
PHC 7010	Pharmacology Lecture	4
PHC 7410	Principles of Toxicology	3
FPH 7015	Biostatistics I	3
PHC 7650	Advanced Topics in Pharmacology (1-2 cr. each; minimum 5 cr.)	5
PHC 8999	Master's Thesis Research and Direction	8
<b>Electives</b>		
Select a minimum of 11 credits from the following		11
PHC 6500	Drugs and the Addictive Process	
PHC 7650	Advanced Topics in Pharmacology	
PHC 7700	Recent Developments in Pharmacology	
FPH 7020	Biostatistics II	
FPH 7240	Epidemiology	
FPH 7420	Principles of Environmental Health	
MGG 7010	Molecular Biology and Genetics	
MGG 7050	Bioinformatics: theory and practice	
MGG 7091	Scientific Communication	
PSC 6910	Pharmaceutical Waste: Environmental Impact and Management	
PSL 7010	Basic Graduate Physiology Lecture I	
UP 6700	Geographic Information Systems	
<b>Total Credits</b>		<b>34</b>

### Plan B Curriculum (33 credits)

Code	Title	Credits
<b>Required Courses</b>		
PHC 7010	Pharmacology Lecture	4
PHC 7410	Principles of Toxicology	3
FPH 7015	Biostatistics I	3
PHC 7650	Advanced Topics in Pharmacology (1-2 cr. each; minimum 5 cr.)	5
Concentration Essay in Pharmacology		3
<b>Electives</b>		
Select a minimum of 15 credits from the following:		15
PHC 6500	Drugs and the Addictive Process	
PHC 7650	Advanced Topics in Pharmacology	
PHC 7700	Recent Developments in Pharmacology	
PHC 7890	Seminar	
FPH 7020	Biostatistics II	
FPH 7240	Epidemiology	
FPH 7420	Principles of Environmental Health	
MGG 7010	Molecular Biology and Genetics	

MGG 7050	Bioinformatics: theory and practice	
MGG 7091	Scientific Communication	
PSC 6910	Pharmaceutical Waste: Environmental Impact and Management	
PSL 7010	Basic Graduate Physiology Lecture I	
UP 6700	Geographic Information Systems	
<b>Total Credits</b>		<b>33</b>

## Pharmacology (Ph.D.)

Admission is contingent upon admission to the Graduate School (p. 21) and the graduate programs of the School of Medicine (p. 313), respectively. Applicants to the graduate program of the Department of Pharmacology should have a background in one of the chemical or biological sciences. Students with diverse backgrounds will be considered individually if they have special competence related to one of the departmental areas of interest. Applicants are expected to provide scores from the Graduate Record Examination. A subject test is not required, but is helpful in making the admission decision. Personal interviews are recommended. Letters of inquiry should be directed to the Chair, Graduate Admissions Committee of the Department.

Ph.D. students in the graduate program in pharmacology enroll in the School of Medicine's Interdisciplinary Biomedical Sciences (IBS) curriculum during their first year. The IBS curriculum includes:

Code	Title	Credits
IBS 7015	Interdisciplinary Cell and Molecular Biology	6
Selection by the student in conjunction with the departmental Graduate Officer of courses within the IBS Systems curriculum:		
IBS 7030	Functional Genomics and Systems Biology	2
IBS 7050	Molecular Neuropsychopharmacology	2
IBS 7090	Biomedical Immunology	2
IBS 7100	Biomedical Neuropharmacology	2
IBS 7130	Systems Neuroscience: Structure and Function of the Nervous System	2
IBS 7140	Foundations of Data Science	3
<b>Total Credits</b>		<b>19</b>

Pharmacology course requirements include: Pharmacology lecture (PHC 7010) (successful completion of this course will provide a waiver of two credits of Systems Biology coursework), participation in the journal club (PHC 7700) and seminar series (PHC 7890), and the selection of six advanced pharmacology minicourses (PHC 7650).

For each student in the program a unique plan is constructed to allow utilization of previous educational experience and individual interests, permitting the student to progress as rapidly as possible. The program consists of a small number of required courses, several research rotation projects, a qualifying examination, and a doctoral dissertation based on new and significant research findings. The research opportunities available for graduate students include the areas of biochemical, cellular, and renal pharmacology; neuropharmacology; cancer biology, including therapeutic approaches; drug metabolism; and environmental toxicology. Major expertise is available in the cell biology of protein trafficking and signal transduction, in protein chemistry, proteases and molecular biology, cellular aging, and in functional imaging technology. A concentration in molecular neuropharmacology is available for specialized training in pharmacology as applied to neuroscience. The master's degree requires the successful completion of a thesis based on original laboratory research. The thirty-credit Ph.D. dissertation registration requirement is fulfilled by registration in the coursesPHC 9991,PHC 9992,PHC 9993, andPHC 9994(Doctoral



Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.

**Molecular and Environmental Toxicology Concentration:** The MET concentration fulfills the basic requirements for a Ph.D. in Pharmacology but also entails additional toxicology-related classroom and research experience. The disciplines of pharmacology and toxicology are highly intertwined. They require the same basic knowledge set; involve the study of the same biochemical, molecular and genetic processes; and use a similar vocabulary. However, the focus of the two disciplines is different, with pharmacology being concerned with the therapeutic effects of drugs and toxicology being concerned with the detrimental effects of chemicals and agents on biological processes. The term "environmental" is used in the concentration's title to convey the concentration's attention to the effects of environmental exposure on human health, as opposed to ecological/terrestrial effects. The overall goals of the MET concentration are to provide comprehensive instruction in modern-era molecular and cellular toxicology, and an appreciation of how such expertise can be used not only to study the mechanism of an agent's toxic effects, but also in an interdisciplinary fashion to study environmentally-linked disease. To achieve this goal, the MET concentration will offer interdisciplinary research opportunities and access to mentors who are dedicated to understanding the toxic effects of specific toxicants (environmental and therapeutic), as well as probing the complex effects of exposure to environmental stressors. Available research projects in the MET concentration will feature investigations examining the effects of environmental agents (e.g., urban air pollution, cigarette smoke, PCBs, lead, dioxin, and phthalates) on cellular and molecular processes involved in disease susceptibility, and initiation and progression. MET scientists are studying intracellular signaling pathways, transcriptional regulation of gene expression, apoptosis, oxidative stress, DNA repair, epigenetic and genetic perturbations, and complex mechanisms in cell growth and differentiation that determine the environmental contribution to diseases with a rising incidence in the urban setting such as metabolic disease, cancer, immune system disturbances, and mental health disorders.

The MET concentration in the Department of Pharmacology Graduate Program emphasizes the use of contemporary approaches, such as advanced techniques in biochemistry, cell biology, molecular biology, molecular genomics, epigenetics, bioinformatics, proteomics, and epidemiology, in problems aimed at dissecting the mechanisms of environmentally-induced disease. In order to prepare for challenging careers in academics, industry, and government, students in the MET concentration are expected to seek access to research laboratories that conform to standards of excellence and are recognized by peers to be competitive in the environmental health sciences/molecular and cellular toxicology field. It is the goal of the MET concentration to prepare our students of today to serve as the leaders of tomorrow.

**Molecular Neuropharmacology Concentration:** The doctoral program in Pharmacology includes a concentration in molecular neuropharmacology. The focus of this concentration is to provide training in the molecular aspects of neuropharmacology, with an emphasis on molecular signaling and functional genomics. The Department recruits competitive, highly motivated graduate students for training in this unique and topical discipline.

Pharmacologists, by the very nature of their discipline, determine the response of individual cells, tissues and/or organisms to changes in the internal and external environment (including therapeutic agents) and are thus in increasing demand in the 'post-genomic' era. Neuropharmacologists are especially in demand, given both the need

for current therapeutic drugs for CNS disorders and the rapid pace of discovery about basic neural mechanisms that shows much promise for therapeutic purposes. Biomedical scientists are now acutely aware that there is, in fact, not a single human genome but myriad genomes comprised of countless DNA deletions, insertions, and single nucleotide polymorphisms which change the substrate upon which environmental factors act and also modify the human response to therapeutic drugs. Neuropharmacology, in the post-genome era, thus encompasses both the effects of drugs on neural cell function as well as the influence of genetic variations (from SNPs to gene knockouts) on drug responses at the cellular and organismic level. In this context, the application of molecular and genetic tools provides critical insights into brain function and facilitates the development of novel therapeutics for brain dysfunction and tumors.



# Physiology

Office: 5374 Scott Hall; 313-577-1520

Chairperson: Joseph C. Dunbar

<https://physiology.med.wayne.edu/>

Physiologists study the functions of living organisms, tissues and/or isolated cells. The emphasis in physiology is on the functional interrelationships between healthy, as opposed to diseased tissues, cells and sub-cellular components. Increasingly, the discipline focuses on the properties of single cells and their sub-cellular components with the availability and application of molecular biology techniques. However, whether at the level of the single cell or the whole organism, the aim of the physiologist is to understand complex functional interrelationships between body tissues.

The Department of Physiology offers programs leading to the Master of Science and Doctor of Philosophy degrees. The degree of Master of Science is frequently the first step toward a Ph.D. Students planning a career in teaching or research in physiology are advised to complete the requirements for the Doctor of Philosophy degree. A Reproductive Sciences Concentration is an option in the Doctor of Philosophy program. It incorporates the teaching, research and physical resources of both the Physiology and the Obstetrics and Gynecology Departments, offering interdisciplinary doctoral training in the reproductive sciences with the degree earned through the Department of Physiology.

- Physiology (M.S.) (p. 332)
- Physiology (Ph.D.) (p. 332)
- Premedical Studies (Graduate Certificate) (<http://bulletins.wayne.edu/graduate/school-medicine/programs/physiology/premedical-studies-graduate-certificate/>)

## Physiology (M.S.)

The mission of the M.S. program in the Department of Physiology is to provide an introduction to advanced training in physiology. Our goal is to train students to carry out advanced research in physiology and to develop problem solving and presentation skills in a wide variety of professional venues and to develop the necessary background to work in research, enter our Ph.D. program, or other professional program.

Admission to these programs is contingent upon admission to the Graduate School (p. 13) and the graduate programs of the School of Medicine (p. 313), respectively. In addition, applicants for the Doctor of Philosophy degree are normally expected to have a personal interview with one or more members of the Departmental Graduate Committee.

All course work must be completed in accordance with the regulations of the Graduate School and the School of Medicine governing graduate scholarship and degrees.

The master's degree is offered under Plan A (thesis) or Plan C (coursework). Under Plan A, applicants for the master's of science degree must complete a minimum of 30 credits beyond a bachelor's degree, of which eight credits must be thesis research credits (PSL 8999). For the remaining twenty-two credits, four must be from multidisciplinary courses other than Physiology (minor).

Under Plan C, applicants for the master's of science degree must complete a minimum of 30 credits of didactic coursework. Of the minimum of 30 required credits, four must be from multidisciplinary courses other than Physiology (minor).

# Physiology (Ph.D.)

The mission of the Ph.D. program in the Department of Physiology is to provide an outstanding educational experience for future scientists, researchers, and academicians in one or more areas of cellular and organ system physiology or developmental biology and reproductive systems. By combining a contemporary curriculum with innovative research, our goal is to develop skilled investigators in the physiological sciences who, by utilizing their advanced problem solving and presentation skills, are qualified to succeed as educators, independent researchers, and as scientists in a wide variety of professional venues.

Admission to these programs is contingent upon admission to the Graduate School (p. 13) and the graduate programs of the School of Medicine (p. 313), respectively. In addition, applicants for the Doctor of Philosophy degree are normally expected to have a personal interview with one or more members of the Departmental Graduate Committee.

All course work must be completed in accordance with the regulations of the Graduate School and the School of Medicine governing graduate scholarship and degrees.

Applicants for the Doctor of Philosophy degree must complete a minimum of ninety credits beyond the bachelor's degree, of which at least thirty credits must be in doctoral research and dissertation direction. For the remaining sixty credits, 3 courses must be physiology advanced courses (for the Reproductive Sciences concentration, a minimum of ten credits is required from the Physiology-Reproductive Sciences coursework) and six from multidisciplinary courses other than Physiology (minor). Ph.D. students holding IBS Fellowships are required to take additional credits from courses in the IBS curriculum (<http://bulletins.wayne.edu/courses/ibs/>). Remaining credits to obtain the required total are taken as electives in subjects pertinent to the student's chosen field of research. Requirements of the Department of Physiology Graduate Program must also be satisfied.

## Cardio-Metabolic Physiology Concentration

The Cardio-Metabolic Physiology concentration is designed to appeal to students who wish for a deeper study in the areas of cardiovascular physiology and metabolism. Students in this concentration will be expected to follow the basic requirements of the Physiology Ph.D. program, but their elective course work will include 10 credits of coursework oriented around cardiovascular and metabolic physiology. These credit hours can be chosen by the student from within the approved list of courses in the concentration, with a view toward the research interests of the student. Courses will be taught by both Physiology department faculty and faculty from other departments. Students in this concentration are free to select any dissertation mentor that is a member of the Physiology Graduate Faculty, and are expected to choose a research topic related to cardiovascular and/or metabolic physiology. Research projects for students in this concentration may center on understanding of basic cardiovascular physiology and metabolism, understanding of cardiovascular and/or metabolic diseases, impact of lifestyle changes on cardio-metabolic physiology, or other related topics.

## Reproductive Sciences Concentration

Students pursuing this concentration are expected to follow the requirements of the Physiology Ph.D. program but their curriculum is oriented around courses in the reproductive sciences taught primarily by Obstetrics and Gynecology graduate teaching faculty. Students taking the Reproductive Sciences concentration will select dissertation mentors from the Obstetrics and Gynecology graduate teaching faculty and

perform their dissertation research in the basic science facilities of the Department of Obstetrics and Gynecology.

### Physiology Courses

Code	Title	Credits
PSL 5680	Basic Endocrinology	3
PSL 6010	Advanced Exercise Physiology	3
PSL 6300	Biotechnology: Techniques and Applications	2
PSL 6310	Biotechnology: Techniques and Applications Lab	2-5
PSL 7010	Basic Graduate Physiology Lecture I	4
PSL 7011	Basic Integrative Graduate Physiology I	4
PSL 7020	Basic Graduate Physiology Laboratory I	2
PSL 7030	Basic Graduate Physiology Lecture II	4
PSL 7031	Basic Integrative Graduate Physiology II	4
PSL 7040	Basic Graduate Physiology Laboratory II	2
PSL 7060	Current Literature in Physiology	1
PSL 7215	Nanobioscience	3
PSL 7400	Sleep and Breathing in Health and Disease	2
PSL 7420	Organizing and Communicating Hypothesis Testing in Physiology	2
PSL 7550	Advanced Renal Physiology	2
PSL 7600	Advanced Cardiovascular Physiology	2
PSL 7640	Cell and Molecular Physiology	3
PSL 7685	Reproductive Physiology Seminar	1
PSL 7660	Advanced Neurophysiology	3
PSL 7680	Endocrinology (RPS approved)	4
PSL 7690	Principles and Techniques of Reproductive Biology (RPS approved)	3
PSL 7700	Embryonic Stem Cell Biology (RPS approved)	3
PSL 7710	Disease States and Reproductive Processes (RPS approved)	1
PSL 7730	Reproductive Sciences: Teratology (RPS approved)	3
PSL 7775	Current Research Topics in Reproductive Science (RPS approved)	3
PSL 7825	Membrane Physiology: Protein Transport, Lipid Metabolism and Human Diseases	2
PSL 7880	Special Problems in Physiology	1-8
PSL 7890	Seminar	1
PSL 7996	Arranged Research	1-15
PSL 8888	Survey of Research at the Chemistry Biology Interface	3

## Public Health Programs

The graduate-level public health programs at Wayne State University are offered by the Department of Family Medicine and Public Health Sciences (p. 308) in the School of Medicine (p. 313).

Public health is the academic discipline that identifies, prevents and reduces community health problems. Public health takes a population-based approach that addresses health promotion, disease prevention, restoration and maintenance of health. The range and scope of the sciences and skills required in public health include epidemiology, biostatistics, research methodology, health services research, and behavioral sciences. Central to the approach of public health is a focus on community-level influences on health including social, economic, cultural, ethnic, and environmental factors. Public health research methods involve defining selected community problems, proposing studies and solutions, surveillance, evaluating progress, and monitoring the use of resources.

- Master of Public Health (M.P.H.) (p. 333)
- Medicine and Public Health (M.D./M.P.H. Joint Degree)
- Nutrition and Food Science and Public Health (M.A./M.P.H. Joint Degree) (<http://bulletins.wayne.edu/graduate/school-medicine/programs/public-health/nutrition-food-science-public-health-mamph/>)
- Social Work and Public Health (M.S.W./M.P.H. Joint Degree) (p. 379)
- Public Health AGRADE (p. 334)
- Public Health (Bridge Graduate Certificate) (p. 335)

## Public Health (M.P.H.)

The Master of Public Health (MPH) Program is located in the School of Medicine's Department of Family Medicine & Public Health Sciences. The MPH degree is a graduate-level professional degree that prepares students for public health practice in communities, organizations, work sites, and in governmental, public, and non-profit settings. MPH graduates are prepared with leadership abilities to promote population health and safety, prevent chronic and infectious disease, and to develop policy and practice-based evidence through clinical and applied research. The interdisciplinary and community-engaged nature of public health practice is reinforced throughout education, research, and service activities.

## Admission Requirements

Admission to the MPH Program is contingent upon admission to the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/admission/>). (See also School of Medicine Graduate Program policies (<https://bulletins.wayne.edu/graduate/school-medicine/programs/>).) Contact the MPH Program (<http://www.familymedicine.med.wayne.edu/mph/>) for specific admission requirements. Applications for the MPH program are considered for fall, winter and spring summer semesters. Note that only completed applications are reviewed.

## Program Requirements

MPH students select a concentration, either the MPH in Public Health Practice (MPH-PHP) or the MPH in Population Health Analytics (MPH-PHA). Candidates for the MPH degree must complete 42 credits in graduate course work. As shown below, both concentrations require the foundation courses, a practicum, and a Master's project. Additionally, all MPH students must complete concentration-specific courses. Finally, students select approved electives to complete the 42 credit requirement.

All course work must be completed within six years in accordance with

the regulations of the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the School of Medicine (<http://bulletins.wayne.edu/graduate/school-medicine/programs/>) governing graduate scholarship and degrees.

Code	Title	Credits
<b>Foundation Courses</b>		
FPH 7011	Foundations of Public Health	3
FPH 7012	Social Justice in Public Health	3
FPH 7015	Biostatistics I	3
FPH 7100	Health Care Organization and Administration	3
FPH 7210	Research Methods for Public Health Professionals	3
FPH 7240	Epidemiology	3
FPH 7300	Public Health Policy	3
<b>Applied Learning Course</b>		
FPH 7440	Applied Practice Experience	3
<b>Integrated Learning Course</b>		
FPH 8991	Integrated Learning Experience	3

Code	Title	Credits
<b>MPH-PHP Concentration Courses</b>		
FPH 7230	Health Program Evaluation	3
FPH 7430	Application of Public Health Principles	3
FPH 7510	Leadership and Population Health	2
FPH 7511	Health Promotion Messaging and Advocacy	3
<b>Electives</b>		<b>4</b>

Code	Title	Credits
<b>MPH-PHA Concentration Courses</b>		
FPH 7020	Biostatistics II	3
FPH 7250	Health Data Analytics	3
FPH 7280	Public Health Community Level Intervention Science	3
FPH 7350	Advanced Statistical Programming	2
<b>Electives</b>		<b>4</b>

## Academic Progression Policies

### MPH Grade Policies

**Required Courses:** Students must earn a B grade or better in all required courses. Grades of B- or lower are considered unacceptable. Students who receive a B- or lower grade in any required course must repeat the course and receive a B or better grade. Students are not eligible to take courses requiring the failed course as a prerequisite.

**Elective Courses:** Students who receive a B- or lower grade in an elective course will be allowed to balance the grade with subsequent grades to maintain a cumulative GPA of 3.0.

**Grade Point Average Requirement:** Students must maintain an overall minimum 3.0 GPA to remain in good standing. Grades below a B are not acceptable at the graduate level. Students who receive a B- or lower in a course will be asked to meet with their advisor to ensure that they are aware of Graduate School requirements and to determine if any remedial action is required.

**Course Repeat Policy:** Only two attempts to complete a required course will be permitted. Two unsuccessful attempts to complete a required course will result in termination from the program. The most recent grade for a repeated course is used in computing the grade point

average and awarding credit hours for a degree. All attempts to take a course are recorded on a student's transcript.

## Public Health AGRADE

### Public Health AGRADE Program

AGRADE provides qualifying Public Health students in the College of Liberal Arts and Sciences with an opportunity to pursue an accelerated pathway to the Master of Public Health (MPH) program in the School of Medicine. The MPH prepares students for a professional career at the intersection of public, clinical and/or other allied health sciences.

### Application

Undergraduate students enrolled in the Public Health major or minor are eligible to apply. Students can apply to AGRADE during the semester they plan to complete 90 credits, usually during the second semester of their junior year. Students should have senior standing during their first semester as an AGRADE student. They must also have successfully completed the following four undergraduate courses:

Code	Title	Credits
PH 2100	Introduction to Public Health	3
PH 3100	Social and Behavioral Aspects of Public Health	3
PH 3200	Introduction to Biostatistics	3
PH 3300	Epidemiology	3

Applicants must have a 3.6 GPA or better in coursework for their Public Health major or minor, and a cumulative GPA of 3.3 or better.

Applications will be reviewed each semester. The GRE may be waived based on satisfactory performance in the AGRADE courses (at least a B grade in each AGRADE class). Acceptance to the BSPH-MPH AGRADE program is competitive. The MPH program admissions committee reviews all AGRADE applicant applications and makes decisions about admission to this accelerated track.

### Requirements

Upon admission, students may elect 3-15 credits in approved graduate M.P.H. courses. These graduate level courses will complete public health major or minor elective requirements or bachelor's degree elective requirements, as well as fulfill the beginning of study toward the master's degree.

Code	Title	Credits
FPH 7011	Foundations of Public Health	3
FPH 7012	Social Justice in Public Health	3
FPH 7015	Biostatistics I	3
FPH 7100	Health Care Organization and Administration	3
FPH 7240	Epidemiology	3

The bachelor's degree will be awarded following the completion of the undergraduate degree requirements. Graduate course work taken in this program must be completed within eight years (from the time that the first graduate course is taken that is counted toward degree requirements) or within six years from the awarding of the bachelor's degree, whichever comes first.

For more information, contact the Public Health undergraduate academic advisors (<https://clas.wayne.edu/public-health/advising/>) and consult the AGRADE FAQs (<https://clas.wayne.edu/public-health/programs/agrade/>).

# Public Health (Bridge Graduate Certificate)

The Bridge Graduate Certificate in Public Health Practice (BGC-PH) provides specialized training for individuals of varying backgrounds and experience who are committed to working in a public health related field. The BGC-PH provides a valuable foundation of core public health knowledge in epidemiology, biostatistics, environmental health, and the social basis of health.

Admission to the BGC-PH is contingent upon admission to the Graduate School (p. 21). (See also School of Medicine Graduate Program policies (p. 313).) Contact the MPH Program (<http://www.familymedicine.med.wayne.edu/mph/>) for specific admission requirements. BGC-PH applications are considered for fall, winter, and spring-summer semesters. Students may enroll in the certificate program concurrently with a regular graduate degree program (e.g. M.S., M.A., or Ph.D.).

BGC-PH candidates must complete a minimum of 15 credits of course work. All course work must be completed within three years in accordance with the regulations of the Graduate School (<http://bulletins.wayne.edu/graduate/general-information/academic-regulations/>) and the School of Medicine (<http://bulletins.wayne.edu/graduate/school-medicine/programs/>) governing graduate scholarship and degrees.

Code	Title	Credits
<b>Required Courses</b>		
FPH 7011	Foundations of Public Health	3
FPH 7012	Social Justice in Public Health	3
FPH 7015	Biostatistics I	3
FPH 7240	Epidemiology	3
<b>Electives</b>		<b>3</b>
<b>Total Credits</b>		<b>15</b>

# Translational Neuroscience (Ph.D.)

*Program Director:* Jeffrey A. Stanley, Ph.D.  
*Office:* Tolan Park Medical Building, Suite 5-B,  
3901 Chrysler Service Drive

The primary mission of the Translational Neuroscience Program (TNP) is to foster a new generation of neuroscientists trained in interdisciplinary science that focuses on improving the health and care of individuals affected by psychiatric or neurological disorders, or injuries to the nervous system through an understanding of disease mechanisms. The didactic curriculum encompasses an integrated syllabus of basic science, pre-clinical research, and clinical neurobiology, including cutting-edge neuroimaging technologies. The strength of the program is its interdisciplinary training faculty, which includes leading experts in brain disorders, diseases and injuries, pre-clinical animal research, transgenic and knockout models, substance abuse, neuropharmacological treatments, brain network and computational modeling, and brain development and aging.

The TNP is housed in the Department of Psychiatry & Behavioral Neurosciences (p. 311), but is comprised of over 40 faculty members from 18 different departments spanning 4 colleges and schools within Wayne State University (WSU). The collaborative and interdisciplinary nature of the TNP program aligns well with the University's mission and strategic plan. Moreover, applications for graduate training in the neurosciences has quadrupled in the past 25 years making neuroscience research one of the most rapidly developing branches of medical research. The TNP program is fully committed in training basic and clinical neuroscientists who will be driving innovations that impact public health.

## Admission Requirements

**Admission** to this program is contingent upon admission to the Graduate School (p. 21) and satisfaction of the admission requirements the School of Medicine (p. 313). Applicants must have an undergraduate degree including several courses in basic sciences such as biology and chemistry. Three letters of recommendation are required from individuals able to judge the applicant's scientific potential. A one-page statement of purpose for applying in the translational neuroscience program, a Curriculum Vitae (CV) that summarizes academic and research experiences, minimum grade point average of 3.0 (on a 4.0 scale), the Graduate Record Examination (GRE), and an interview with a Graduate Officer or designated representative from the Steering Committee are required. Writing samples including conference abstracts and presentations, or publications, are optional. Foreign students must be proficient in English as determined by satisfactory performance on the standardized TOEFL English proficiency examination. An interview with potential graduate faculty mentor(s) is also desirable.

## Program Requirements

Students in the doctoral program are required to complete a minimum of ninety credits beyond the baccalaureate degree. Required courses include the following:

Code	Title	Credits
<b>Required Courses</b>		
ANA 7130	Neuroanatomy	4
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
IBS 7015	Interdisciplinary Cell and Molecular Biology	6
<b>IBS Courses (Select one of the following):</b>		<b>2</b>
IBS 7030	Functional Genomics and Systems Biology	

IBS 7050	Molecular Neuropsychopharmacology	
IBS 7090	Biomedical Immunology	
IBS 7100	Biomedical Neuropharmacology	
IBS 7130	Systems Neuroscience: Structure and Function of the Nervous System	
<b>Statistics (select one of the following):</b>		<b>3-4</b>
FPH 7015	Biostatistics I	
PSY 7150	Quantitative Methods in Psychology I	
FPH 7020	Biostatistics II	
PSY 7160	Psychometrics and Factor Analysis	
<b>Additional Coursework</b>		
PYC 7010	Molecular Neuropsychopharmacology	3
PYC 7140	Fundamentals of Neuroimaging	3
PYC 7150	Fundamentals of Neuropsychiatric Disorders	3
PYC 7890	Research Seminar (6-8 credits required)	1
PYC 7990	Directed Study (Max. 10)	1-6
PYC 7996	Research Problems (9 credits required)	3
PYC 7998	Clinical Neuroscience Rotation (Max. 9)	3,6
PYC 9990	Pre-Doctoral Candidacy Research (Max. 10)	1-8
PYC 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
PYC 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
PYC 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
PYC 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
PYC 9995	Candidate Maintenance Status: Doctoral Dissertation Research and Direction	0
<b>Advanced Topic Courses</b>		
12 credits minimum and 24 credits maximum encompassing neuroscience principles and methods, and the applications to nervous system disorders (starts in year 2)		12-24

Students are required to seek advice from a graduate advisor on his/ her course selection. All course work must be completed in accordance with the regulations of the Graduate School (p. 24) and the School of Medicine (p. 313) governing graduate scholarship and degrees.



# College of Nursing

Dean: Ramona Benkert

The Wayne State University College of Nursing is regionally, nationally, and internationally recognized for educating graduate and undergraduate students as practitioners and scholars in the nursing profession. The College is committed to research and scholarly activity that contributes to the discipline of nursing and excels in the development, application, and dissemination of such knowledge to promote human health and well-being.

Nursing is an academic discipline and a profession. As a discipline, nursing develops knowledge concerning human beings, their care, health, and the environment. Concepts derived from such research order the discipline and profession of nursing as well as give identity to nursing practice and direct inquiry and theory development. As a profession, nursing creatively uses knowledge in response to the health care needs of the local and global society. Both of these functions are enhanced by the scholarly environment of the University and its multicultural urban setting as a context for professional nursing practice.

Consistent with this view of the nursing profession, the College supports the importance of liberal arts, humanities, and the sciences in nursing education. The faculty believes that programs designed for the preparation of nurses must be composed of the intellectual, social, cultural, and technical components of liberal and professional education that are available to students within an institution of higher learning. The faculty also affirms the necessity and value of clinical practice within a professional nursing program. Experience within a variety of clinical and vulnerable populations is one of the primary modes for the development of nursing practice competencies.

Learners from diverse backgrounds enter the College to begin or continue their education and thereby add to the richness of this learning environment. The faculty supports the right of students to question, challenge and debate within the context of inquiry as an essential ingredient to their development. Continuing evaluation on the part of the students and the faculty is essential to advancing nursing knowledge and sustaining the integrity of the program.

The faculty of the College of Nursing, as members of the academic community, recognizes that its professional functions extend beyond contributions to formal teaching. Research, practice, and community service are important expectations of the faculty. The faculty views as essential, academic freedom, shared governance, opportunity to develop knowledge, and responsibility to incorporate new knowledge into teaching and nursing practice. The faculty assumes responsibility for enhancing the image of the College of Nursing and the University locally, nationally, and internationally through various avenues including research, scholarship, practice, consultation, and participatory decision-making.

## Accreditation

The baccalaureate program is approved by the Michigan State Board of Nursing, and graduates are admitted to the licensing examination for professional nurses in the State of Michigan. The baccalaureate, master's, and Doctor of Nursing Practice (DNP) programs of the College are accredited by the Commission on Collegiate Nursing Education (CCNE). The graduate nurse-midwife major is also accredited by the Accreditation Commission for Midwifery Education (ACME), (formerly ACNM Division of Accreditation).

# Academic Regulations for the College of Nursing

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations section of this bulletin. For additional College of Nursing (CON) regulations, students should consult the CON Program Handbooks. The following additions and amendments pertain to the College of Nursing.

## Registration

Each student is required at the beginning of each semester of attendance to register according to the procedure and schedule published in the official University Schedule of Classes. Registration must be completed before the student may attend classes. For registration dates, the student should consult the schedule of classes. A minimum of eight credits in graduate courses constitutes a full-time load for graduate students. Some courses require approval of the faculty of record and the College Graduate Officer.

## Professional Licensure and Liability Insurance

Graduate students must be registered to practice nursing in Michigan and have professional liability and malpractice insurance before registering for clinical and practicum courses. Students must submit a valid Michigan RN license by the end of the second semester of the program or they will not progress. The College offers a blanket school malpractice policy with a minimum amount of liability insurance of \$1,000,000/\$3,000,000. Each student is expected to pay \$10.29 per academic year for the malpractice insurance policy coverage by the posted semester deadline dates prior to the start of clinical and practicum course work. A valid Michigan RN license and Liability insurance are required for a valid clinical permit.

## Health Requirements for a Clinical Permit

A valid clinical permit must be on file in the Office of Student Affairs by the semester deadline dates prior to clinical and practicum courses. Please refer to the Clinical Permit requirements in the CastleBranch Handbook for details. Students who have met all of the Health Clearance Requirements will be issued a Clinical Permit. Students who do not have a Clinical Permit issued by the College of Nursing Office of Student Affairs will not be allowed into the clinical or practicum setting. Clinical Permits will be issued once each semester prior to the start of the semester. For graduate students, the deadline dates are August 15 (Fall), December 15 (Winter), and April 15 (Spring/Summer).

## Master's, Graduate Certificate, and Doctoral Academic Regulations (Scholarship and Progression)

The graduate grading system is intended to reflect high standards of scholarship. The policies for academic progression for graduate students are listed below.

1. A student must earn an overall grade point average of 3.0 or better to be awarded the M.S.N. degree.
2. A student achieving less than a 3.0 g.p.a. at any point in the program must achieve a g.p.a. of 3.0 or better within one semester. If there is evidence that the goal of a 3.0 g.p.a. is not achievable, the student will be excluded from the program.

3. A student may petition to repeat a graduate course once in which a grade lower than 3.0 is received. No more than two courses may be repeated.
4. A student may be excluded from the College of Nursing for unsafe and/or unethical conduct in the program without having been previously warned.
5. Students must be enrolled each academic year while in the graduate programs.
  - a. Students who fail to enroll in Fall and Winter semesters of a given academic year will be considered not in good standing.
  - b. Students who fail to enroll in Fall and Winter semesters of a given academic year will be subject to exclusion from the program.
6. Graduate students have a time limit to complete all requirements for the degree. The period begins with the end of the semester during which the student has taken work which applies toward meeting the requirements of the degree.
  - a. MSN students have a six-year time limit.
  - b. Graduate Certificate students have a three-year time limit.
  - c. Doctoral students have a seven-year time limit.

## Student Rights and Responsibilities

Continuance in the College is contingent upon compliance with official rules, regulations, requirements, and procedures of the University and the College of Nursing. *The student is responsible for reading the contents of this bulletin pertinent to the College of Nursing and otherwise becoming informed of and fulfilling all course and degree requirements in proper sequence with satisfactory scholarship.* In case of doubt regarding any matter affecting his or her standing as a student, the student should consult with an academic advisor. The faculty reserves the right to amend or revise the policies and requirements set forth in the College of Nursing section of this bulletin.

# Nursing (M.S.N.)

## Admission Requirements

Beginning Fall 2024, admission to this program is through AACN supported universal application system, NursingCAS.

Applicants must satisfy the following criteria and submit the required documents for admission consideration:

1. The applicant must have completed an Accreditation Commission for Education in Nursing (ACEN) or Commission on Collegiate Nursing Education (CCNE) accredited baccalaureate program in nursing with a grade point average (g.p.a.) of 3.0.
2. Possession of a current Michigan Registered Nurse Licensure. All applicants educated outside the U.S. must be certified by the Commission on Graduates of Foreign Nursing Schools (CGFNS). Contact CGFNS, 3600 Market St., Philadelphia PA 19104-2651 to request a certification application, or call: 215-222-8454. Verification of a student's CGFNS certification must be forwarded to the State of Michigan Board of Nursing by the CGFNS in order to take the RN licensure examination.
3. A personal goal statement.
4. Two professional letters of recommendation.
5. Resume.
6. Official transcripts from all postsecondary institutions. An official transcript/credit evaluation is required for all international transcripts.
7. Test of English as a Foreign Language (TOEFL) when required.
8. All qualified applicants will be interviewed.

There may be additional requirements in each of the specialty clinical major areas. Please refer to the major program and consult with a clinical specialty coordinator for specific requirements.

## Application

All new applicants must submit an application for graduate admission. Applications, including all supporting documentation, must be received by the posted deadline dates. Deadline dates for submission of application materials vary by semester (please refer to the College of Nursing website for more information). Informational meetings are held monthly, and applicants are encouraged to attend before completing the application. The schedule is listed on the College of Nursing website under the Admissions tab, then Information Meetings.

## Admission Decisions

Admission decisions are based upon all materials submitted and reflect careful consideration of the applicant's professional goals, interview and the resources of the College of Nursing. Even if an applicant meets all minimum requirements, admission may not be granted because of

1. unavailable program space and/or
2. inadequate College resources relevant to the applicant's specific interest.

## Deadlines

- **Fall:** August 1
- **Winter:** November 15

## Readmission

The master's student who withdraws from the program in good standing should contact the Office of Student Affairs one semester prior to the semester for which re-admission is desired. Following a review by the Director of Advanced Practice and Graduate Certificate Programs, the M.S.N. Committee and the Office of Academic and Clinical Affairs, the student will be informed of the steps required for readmission.

**Revalidation of Credit:** The M.S.N. committee reserves the right of revalidation of over-age (10 years) credits. Credits earned at other institutions may require revalidation at the time of Wayne State admission. In revalidation cases, the advisor and the student must set a terminal date for completion of all degree requirements, including such additional requirements as may be prescribed to revalidate the over-age credits.

## Program Overview

Candidates for the Master of Science in Nursing (M.S.N.) must complete thirty-seven to fifty-two credits of study. All course work must be completed in accordance with the academic procedures of the College of Nursing and the Graduate School governing graduate scholarship and degrees. Credits must be normally distributed as follows:

Clinical or Practicum Nursing Sequence: Cr. 18-24

Supporting Courses: Cr. 7-12

Master's Core Courses: Cr. 12 (for clinical specialties) Cr. 15 (for MSN in APHN)

All M.S.N. programs require the election of a particular major. Majors currently available to satisfy these requirements are detailed below. Supporting courses, which are clinically specific, are predetermined by selection of the clinical (or non-clinical) nursing sequence and will be found as part of the major areas of study. Students should inquire about possible additional offerings. All programs are subject to periodic revision.

All M.S.N. students must elect a series of courses that will prepare him/her to be competent in the utilization of research findings in practice. To develop these skills, the student completes courses in evidence-based nursing and/or biostatistics and epidemiology.

**Plan of Work:** With the approval of the advisor, the student and advisor develop and file a Plan of Work prior to completion of twelve graduate credits at Wayne State University. A student must have a minimum 3.0 grade point average to have a Plan of Work accepted by the Graduate Officer. Each Plan must include the course requirements for the clinical (and non-clinical) nursing sequence and intended degree. It is the responsibility of the student to meet with his/her advisor to file any changes in the Plan of Work.

**Time Limitations:** Students have six years to complete requirements. The six-year limit begins from the end of the semester during which the student has taken course work applicable toward meeting the requirements of the degree; this may occur before the student is regularly admitted to the major.

**Required Clinical Experience Prior to APRN Clinical Courses:** Several specialties require RN staff nurse experience in that specialty population prior to the start of the three sequential clinical courses after NUR 7030. Failure to complete this requirement may result in a delay in progression.

1. NNP - the equivalent of two full-time years of RN experience in a Level III or higher NICU;

1. PNP (Acute and Primary) - the equivalent of one full-time year of pediatric experience; in-hospital experience mandatory for PNP-Acute Care)
1. PMH - the equivalent of one-year of experience in a psych-mental health setting

## M.S.N. Major: Advanced Public Health Nursing

(Minimum of thirty-three credits required)

The Master of Science in Nursing degree in Advanced Public Health Nursing (APHN) prepares nurses for advanced care of populations and communities. The APHN promotes the health and well-being of populations and communities. Improving the health of populations and communities is addressed through community assessment, program planning and implementation, leadership strategies, health policy development, and program evaluation. Community partnerships and collaborations are emphasized throughout the curriculum. The goal of this program is to prepare nurses who meet the APHN core competencies in education, practice, leadership, and research. The program sees the APHN as the voice for public health nursing.

Code	Title	Credits
<b>Master's Core Courses</b>		
NUR 7000	Statistics in Nursing	3
NUR 7105	Theoretical Foundations for Nursing	3
NUR 7222	Leadership in Health Policy, Ethics and Change	3
NUR 8625	Evidence Based Nursing Practice: Theoretical and Methodological Issues	3
NUR 8895	Population Health for Nursing	3
<b>Practicum Course Sequence</b>		
NUR 7425	Advanced Public Health Nursing: Community Based Participatory Research - Didactic	2
NUR 7426	Advanced Public Health Nursing: Community Based Participatory Research - Clinical	1
NUR 7435	Advanced Public Health Nursing: Comprehensive Community Assessment - Didactic	2
NUR 7436	Advanced Public Health Nursing: Comprehensive Community Assessment - Clinical	3
NUR 7445	Advanced Public Health Nursing: Health Promotion and Prevention with Diverse Populations - Didactic	2
NUR 7446	Advanced Public Health Nursing: Health Promotion and Prevention with Diverse Populations - Clinical	3
NUR 7455	Adv Public Health Nursing: Program Planning, Quality Improvement and Evaluation Residency - Didactic	2
NUR 7456	Adv Public Health Nursing: Program Planning, Quality Improvement and Evaluation Residency - Clinical	3
<b>Total Credits</b>		<b>33</b>

## M.S.N. Major: Neonatal Nurse Practitioner

(Minimum of forty-seven credits required)

The Master of Science in Nursing degree with a major in Neonatal Nurse Practitioner (NNP) prepares nurses for advanced practice in the care of high-risk neonates. The curriculum combines both broad foundational

knowledge essential for the care of neonates as a vulnerable population, as well as specialty knowledge in high-risk neonatal care. Attention is given to health promotion, prevention of disease and disability, disease process, clinical management, and family-centered care. The goal of this innovative program is to prepare advanced practice nurses who will promote the health and development of neonates as individuals and as population groups encountering changing healthcare systems within urban and global environments. Two years of Level III NICU experience is required prior to the start of clinical courses. Upon program completion, graduates are eligible to take the NNP certification examination offered by the National Certification Corporation (NCC).

Code	Title	Credits
NUR 6510	Health Economics, Policy, and Professional Issues for APNs	3
NUR 7000	Statistics in Nursing	3
NUR 7105	Theoretical Foundations for Nursing	3
NUR 8625	Evidence Based Nursing Practice: Theoretical and Methodological Issues	3
<b>Supporting Courses</b>		
NUR 7200	Advanced Neonatal Pharmacology	3
NUR 7444	Advanced Physiology and Pathophysiology Across the Lifespan for APRNs	4
<b>Clinical Course Sequence</b>		
NUR 7030	Advanced Nursing Assessment	4
NUR 7950	Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management I - Didactic	4
NUR 7955	Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management I - Clinical	4
NUR 7960	Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management II - Didactic	3
NUR 7965	Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management II - Clinical	5
NUR 7970	Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management III - Didactic	2
NUR 7975	Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management III - Clinical	6
<b>Total Credits</b>		<b>47</b>

## M.S.N. Major: Pediatric Nurse Practitioner-Acute Care

(Minimum of forty-seven credits required)

The Master of Science in Nursing with a Pediatric Nurse Practitioner-Acute Care specialty prepares nurses for advanced practice in the care of acutely and critically ill children and adolescents. The goal of this innovative program is to prepare advanced practice nurses who will promote the health and development of children and adolescents as individuals and as population groups encountering changing healthcare systems within urban and global environments. Graduates of the PNP-AC program are prepared to provide expert clinical care to meet the specialized physiological and psychological needs of children and adolescents with complex acute, critical, and chronic health conditions and/or urgent, emergent, and life-threatening conditions. The curriculum combines both broad foundational knowledge essential for the care of children as a vulnerable population, as well as specialty knowledge in pediatrics. Attention is given to health promotion, prevention of disease and disability, disease process, treatment, clinical management, and family-centered care provided in a variety of acute and critical care settings including hospitals, intensive care units, emergency departments, and clinics. Upon program completion, students are

eligible to take a certification examination through the Pediatric Nursing Certification Board (PNCB).

Code	Title	Credits
<b>Master's Core Courses</b>		
NUR 7000	Statistics in Nursing	3
NUR 6510	Health Economics, Policy, and Professional Issues for APNs	3
NUR 7105	Theoretical Foundations for Nursing	3
NUR 8625	Evidence Based Nursing Practice: Theoretical and Methodological Issues	3
<b>Supporting Courses</b>		
NUR 7444	Advanced Physiology and Pathophysiology Across the Lifespan for APRNs	4
NUR 7207	Advanced Pediatric Pharmacology	3
<b>Clinical Course Sequence</b>		
NUR 7030	Advanced Nursing Assessment	4
NUR 7920	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management I - Didactic	4
NUR 7925	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management I - Clinical	4
NUR 7930	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care, and Management II -Didactic	3
NUR 7935	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management II -Clinical	5
NUR 7940	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management III- Didactic	2
NUR 7945	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management III -Clinical	6
<b>Total Credits</b>		<b>47</b>

## M.S.N. Major: Pediatric Nurse Practitioner-Primary Care

*(Minimum of forty-seven credits required)*

The Master of Science in Nursing with a Pediatric Nurse Practitioner–Primary Care specialty prepares nurses for advanced practice in the care of children and adolescents. The goal of this innovative program is to prepare advanced practice nurses who will promote the health and development of children and adolescents as individuals and as population groups encountering changing healthcare systems within urban and global environments. Graduates of the PNP-PC program are prepared to provide pediatric primary healthcare including health maintenance, anticipatory guidance, well-child examinations, developmental screening, and diagnosing and managing common and complex health/illness conditions. The curriculum combines both broad foundational knowledge essential for the care of children as a vulnerable population, as well as specialty knowledge in pediatrics. Attention is given to health promotion, prevention of disease and disability, treatment, clinical management, and family-centered care in a variety of settings including primary care clinics, specialty clinics, and community environments. Upon program completion, students are eligible to take a certification examination through the Pediatric Nursing Certification Board (PNCB).

Code	Title	Credits
<b>Master's Core Courses</b>		
NUR 6510	Health Economics, Policy, and Professional Issues for APNs	3
NUR 7000	Statistics in Nursing	3
NUR 7105	Theoretical Foundations for Nursing	3
NUR 8625	Evidence Based Nursing Practice: Theoretical and Methodological Issues	3
<b>Supporting Courses</b>		
NUR 7444	Advanced Physiology and Pathophysiology Across the Lifespan for APRNs	4
NUR 7207	Advanced Pediatric Pharmacology	3
<b>Clinical Course Sequence</b>		
NUR 7030	Advanced Nursing Assessment	4
NUR 7670	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management I - Didactic	4
NUR 7675	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management I - Clinical	4
NUR 7680	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management II - Didactic	3
NUR 7685	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management II - Clinical	5
NUR 7690	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management III - Didactic	2
NUR 7695	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management III - Clinical	6
<b>Total Credits</b>		<b>47</b>

## M.S.N. Major: Psychiatric Mental Health Nurse Practitioner

*(Minimum of fifty-two credits required)*

All students in the Psychiatric and Mental Health Nurse Practitioner (PMHNP) major gain knowledge in biological, neurological, pharmacological, and physiological domains that prepare them to conduct comprehensive assessments and utilize a range of psychological interventions. The PMHNP clinical nursing course sequence focuses on: Psychiatric assessment, triage, and crisis intervention; Biopsychological models of mental health and illness; theory and practice with individual interest (e.g., addictions, eating and sleep disorders, gender issues, HIV/AIDS, major psychiatric illnesses, violence) and with clinical populations of interest. Upon program completion, graduates are eligible to take the American Nurse Credentialing Center (ANCC) Psychiatric-Mental Health Nurse Practitioner certification exam.

Code	Title	Credits
<b>Master's Core Courses</b>		
NUR 6510	Health Economics, Policy, and Professional Issues for APNs	3
NUR 7000	Statistics in Nursing	3
NUR 7105	Theoretical Foundations for Nursing	3
NUR 8625	Evidence Based Nursing Practice: Theoretical and Methodological Issues	3
<b>Supporting Courses</b>		



NUR 7444	Advanced Physiology and Pathophysiology Across the Lifespan for APRNs	4
NUR 7555	Pharmacotherapeutics for Advanced Practice	3
NUR 7615	Psychopathology and Therapeutic Frameworks Across the Lifespan for PMHMP	2
NUR 7625	Psychopharmacology	2
NUR 7650	Advanced Psychiatric Assessment and Diagnostic Reasoning	1
<b>Clinical Course Sequence</b>		
NUR 7030	Advanced Nursing Assessment	4
NUR 7460	Family Psychiatric Mental Health NP. Adv Practice Nursing with Individuals and Communities - Didactic	3
NUR 7465	Family Psychiatric Mental Health NP. Adv Practice Nursing with Individuals and Communities -Clinical	5
NUR 7470	Family Psychiatric Mental Health Nurse Practitioner. Advanced Practice Nursing with Groups -Didactic	3
NUR 7475	Family Psychiatric Mental Health Nurse Practitioner. Advanced Practice Nursing With Groups -Clinical	5
NUR 7480	Family Psychiatric Mental Health NP. Advanced Practice Nursing with Families - Didactic	3
NUR 7485	Family Psychiatric Mental Health NP. Advanced Practice Nursing with Families - Clinical	5
<b>Total Credits</b>		<b>52</b>

## Nursing (D.N.P.)

The Doctor of Nursing Practice (D.N.P.) program was established in 2008 for registered nurses seeking advanced education for leadership in clinical positions, health policy development, evaluation and application of patient care research, and systemic efforts in health promotion and risk reduction. Through this program, students are prepared to use clinical research to improve and transform health care.

## Admission Requirements

Beginning Fall 2024, admission to this program is through AACN supported universal application system, NursingCAS.

Applicants must satisfy the following criteria and submit the required documents for admission consideration:

1. The applicant must have completed an Accreditation Commission for Education in Nursing (ACEN) or Commission on Collegiate Nursing Education (CCNE) accredited baccalaureate program in nursing with a grade point average (g.p.a.) of 3.0.
2. Possession of a current Michigan Registered Nurse Licensure. All applicants educated outside the U.S. must be certified by the Commission on Graduates of Foreign Nursing Schools (CGFNS). Contact CGFNS, 3600 Market St., Philadelphia PA 19104-2651 to request a certification application, or call: 215-222-8454. Verification of a student's CGFNS certification must be forwarded to the State of Michigan Board of Nursing by the CGFNS in order to take the RN licensure examination.
3. Post-masters nursing students must be certified by a nationally recognized body in their area of specialization.
4. Post-masters nursing students must be certified by a nationally recognized certifying body in their area of specialization.
5. A personal goal statement.

6. Two professional letters of recommendation (one reference from a doctoral-prepared individual is preferred).
7. Resume.
8. Official transcripts from all postsecondary institutions. An official transcript/credit evaluation is required for all international transcripts.
9. Test of English as a Foreign Language® (TOEFL) when required.
10. All qualified applicants will be interviewed.

There may be additional requirements in each of the specialty clinical major areas. Please refer to the major program and consult with a clinical specialty coordinator for specific requirements.

**Application:** The D.N.P. Program admits students every Fall semester. The final deadline is August 1. Informational meetings are held monthly and applicants are encouraged to attend before completing the application. The schedule is listed on the College of Nursing website under the Admissions tab, Information Meetings.

**Admission decisions** are based upon all materials submitted and reflect careful consideration of the applicant's professional goals, D.N.P. Project interests, interview and the resources of the College of Nursing. Even if an applicant meets all minimum requirements, admission may not be granted because of

1. unavailable program space and/or
2. inadequate College resources relevant to the applicant's specific interest.

A graduate level statistics course must be completed in the first semester of the program.

Students must successfully complete the first semester NUR 8620 Foundations of Nursing as a Discipline in order to progress in the D.N.P. program.

**Readmission** The D.N.P. student who withdraws from the program in good standing should contact the Office of Student Affairs one semester prior to the semester for which re-enrollment is desired. Following a review by the Director of Advanced Practice and Graduate Certificate Programs, the D.N.P. Committee and the Office for Academic and Clinical Affairs, the student will be informed of the steps required for readmission.

**Revalidation of Credit:** The D.N.P. committee reserves the right of revalidation of over-age (10 years) credits. Credits earned at other institutions may require revalidation at the time of WSU admission. In revalidation cases, the advisor and the student must set a terminal date for completion of all degree requirements, including such additional requirements as may be prescribed to revalidate the over-age credits.

## Program Requirements

All course work must be completed in accordance with the academic procedures of the College of Nursing and the Graduate School governing graduate scholarship and degrees.

The D.N.P. program must include a minimum of thirty credits (excluding the DNP Project) of graduate coursework completed in residence at Wayne State University. Neither elective courses nor classes taken as a "visitor" may be used to fulfill this requirement. Early in the program the student, in consultation with the academic advisor, plans a sequence of courses. This Plan of Work is approved by the academic advisor and the Director of Advanced Practice and Graduate Certificate Programs.

**Time Limitation:** Students in all paths have a seven-year time limit to complete all requirements for the D.N.P. degree. The seven-year period begins with the end of the semester during which the student was

admitted to doctoral study and was taking work toward meeting the requirements for degree. Students whose seven-year time limit has expired may be considered for an extension provided the DNP Project Proposal has been completed (NUR 9508) . Subsequent extensions will not be considered in the absence of substantial progress during the previous year.

**Required Clinical Experience Prior to APRN Clinical Courses:** Several specialties require RN staff nurse experience in that specialty population prior to the start of the three sequential clinical courses after NUR 7030 Advanced Nursing Assessment. Failure to complete this requirement may result in a delay in progression.

1. NNP - the equivalent of two full-time years of RN experience in a Level III or higher NICU;
1. PNP (Acute and Primary) - the equivalent of one full-time year of pediatric experience (in-hospital experience for PNP Acute Care);
1. PMH - the equivalent of one year of experience in a psychiatric mental health setting.

## Curricular Options

There are three curricular paths for students to complete the requirements for the Doctor of Nursing Practice. These options are oriented to the applicant’s educational level at the time of admission and professional career goals.

Path I is for students entering the program post-B.S.N. Students must choose a clinical specialty major.

Paths II and III are for those entering post-M.S.N. Students in path III must choose a clinical specialty major.

Full-time and part-time study options are available.

Students in path I and path III have several clinical specialty options:

- Family Nurse Practitioner
- Adult-Gerontology Acute Care Nurse Practitioner
- Adult-Gerontology Primary Care Nurse Practitioner
- Psychiatric-Mental Health Nurse Practitioner
- Neonatal Nurse Practitioner
- Pediatric Nurse Practitioner-Acute Care
- Pediatric Nurse Practitioner-Primary Care

### DNP Program Curriculum

Program Credits by entry option:

- Path I: BSN-DNP. 73 credits (FNP. 76 credits; PMH:78 credits). Stats prerequisite (3 credits).
- Path II: POST-MSN with clinical specialty (APRN certified); complete Core and DNP Project Practicum Courses (38 credits).
- Path III: POST-MSN without clinical specialty: determined after syllabi review and gap analysis.

## DNP Curriculum

Total Credits: 73-78

Code	Title	Credits
<b>DNP Core Courses</b>		
NUR 8210	Determinants of Health and Health Disparities	3
NUR 8615	Informatics Innovations in Nursing	3
NUR 8620	Foundations of Nursing as a Discipline	3
NUR 8625	Evidence Based Nursing Practice: Theoretical and Methodological Issues	3
NUR 8650	Advanced Professional Leadership	3
NUR 8653	Healthcare Analytic Methods, Data Management, Evaluation, and Outcomes	4
NUR 8665	Health Policy, Economics, Ethics and Evaluation in Advanced Practice Nursing	4
NUR 8895	Population Health for Nursing	3
<b>Supportive Courses</b>		
NUR 7444	Advanced Physiology and Pathophysiology Across the Lifespan for APRNs	4
NUR 7555	Pharmacotherapeutics for Advanced Practice	3
or NUR 7200	Advanced Neonatal Pharmacology	
or NUR 7207	Advanced Pediatric Pharmacology	
<b>Clinical Course Sequence</b>		
NUR 7030	Advanced Nursing Assessment	4
**Specialty Didactic and Clinical I		8
**Specialty Didactic and Clinical II		8
**Specialty Didactic and Clinical III		8
<b>**NUR Clinical course sequence numbers are specific to the specialty</b>		
<b>DNP Project Practicum Courses</b>		
NUR 9508	DNP Project Proposal Development Practicum I	4
NUR 9510	DNP Project Practicum III	4
NUR 9520	DNP Project	4
<b>Additional Courses for PMH Specialty</b>		
NUR 7615 & NUR 7625 & NUR 7650	Psychopathology and Therapeutic Frameworks Across the Lifespan for PMHMP and Psychopharmacology and Advanced Psychiatric Assessment and Diagnostic Reasoning	
NUR 7625	Psychopharmacology	
NUR 7650	Advanced Psychiatric Assessment and Diagnostic Reasoning	
<b>Additional Courses for FNP Specialty</b>		
NUR 7035	Family Centered Health Promotion and Risk-reduction	
<b>DNP Prerequisite Course first semester of DNP Program</b>		
NUR 7000	Statistics in Nursing	
<b>Total Credits</b>		<b>73</b>

## Nursing (Ph.D.)

Established in 1975, the Doctor of Philosophy (Ph.D.) in Nursing program is designed to prepare researchers and scholars to provide leadership to the profession and discipline of nursing. The program emphasizes the development of the student’s capacity to make significant, original contributions to nursing knowledge. The understanding that nursing provides services that help individuals, families, and communities achieve health drives the Ph.D. program. These services are based on systematic knowledge about human health and human-environment relationships. Particular attention is given to the kinds of human-

environment relationships that are optimal for health. This systematic knowledge base is the foundation of nursing science.

## Admission Requirements

Prospective students are encouraged to attend Informational Meetings (<https://nursing.wayne.edu/admissions/info-meetings/>) prior to application.

1. **Admission** - Beginning Fall 2024, admission to this program is through AACN supported universal application system, NursingCAS. Applicants must satisfy the following criteria and submit the required documents for admission consideration:
2. **Application:** All new applicants must submit the graduate student application.
  - a. The application is available through NursingCAS. Admission decisions are based upon all materials submitted and a personal interview with potential faculty mentors. Decisions reflect careful consideration of the applicant's professional goals, research interests, and the resources of the College of Nursing. Although an applicant may meet all minimum requirements, admission may not be granted because of 1) unavailable program space, and/or 2) inadequate College resources relevant to the applicant's specific area of research interest. Admission decisions will be made after all required materials have been received.
3. **Nursing Degree:** Applicants must have earned a bachelor's or master's degree in nursing or the equivalent from a National League for Nursing (NLN) or Commission on Collegiate Nursing Education (CCNE) accredited institution. International applicants must have earned an equivalent degree.
4. **Grade Point Average:** It is recommended that applicants who have a master's degree have a 3.0 (on a 4.0 scale) graduate GPA, based on at least twelve credits of graduate level course work; and applicants who have a bachelor's degree have a minimum 3.0 GPA. in upper division undergraduate course work (the last sixty credits).
5. **Graduate Record Examination (GRE):** The GRE is not required.
6. **References:** Submit two letters of recommendation from nurse faculty, nurse researchers, and/or other professional colleagues (preferably at the doctoral-prepared level) who can evaluate the applicant's scholarship and aptitude for research.
7. **Resume:** Resume or Curriculum Vita that includes education, work and/or research experience, publications, certifications, licenses, grants, professional affiliations, awards, honors, presentations, and/or courses taught.
8. **Statement of Professional Goal:** Write a brief statement that describes motivation for doctoral study, career goals, potential focus of research and how that research interest may fit with one or more of the research orientations of the faculty in the College of Nursing. To determine a potential fit of research interests with faculty research programs, applicants are encouraged to view faculty interests in the Faculty Programs of Research (<https://nursing.wayne.edu/research/>). One or two faculty whose research is aligned with the students should be included in the Goals Statement.
9. **Interviews:** Applicant interviews are required and will be scheduled after receipt of the College of Nursing application, goals statement and curriculum vita.

**Admission Deadline:** August 1

**Readmission:** Students who are inactive and desire readmission must submit a written request to the Director of the Ph.D. Program of the College of Nursing, four months prior to the semester in which they wish to register. The readmission decision is based on recommendation of the Ph.D. Program Committee and the Graduate School.

Candidates for the Doctor of Philosophy in Nursing must complete a minimum of ninety-one graduate credits beyond the baccalaureate degree including a thirty-credit dissertation. The thirty-credit dissertation registration requirement is fulfilled by registering in the courses NUR 9991, NUR 9992, NUR 9993, and NUR 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters. Students are also expected to attend a minimum of two semesters of Dissertation Colloquia during the dissertation credits. All course work must be completed in accordance with the academic procedures of the College and the Graduate School governing graduate scholarship and degrees.

**7000-Level Courses:** The Ph.D. program must include thirty credits, excluding dissertation direction, in courses numbered 7000 or above.

**Plan of Work:** Early in their program the doctoral student, with the assistance of their academic advisor plans a sequence of studies, the Plan of Work. The Final Plan of Work, found on the Graduate School website, approved by the academic advisor and the PhD Program Director, College of Nursing, should be submitted to the Graduate School before the student has completed forty graduate credits (including transfer credits). Petition for Transfer of Credits and annual reviews should be submitted with to the Plan of Work and any changes in the Plan of Work.

**Residency:** The Ph.D. requirement of one year of residence is met by completion of six graduate credits in course work (not dissertation) over two successive semesters (Spring/Summer Semester may be excluded).

**Qualifying Examinations** must be applied for following completion of at least 50 credits of graduate level courses, including domain and methods as stated on the student's approved Plan of Work.

**Candidacy:** The final Qualifying examination must be passed, and the Dissertation Committee approved to establish candidacy. DNP to PhD and MSN to PhD students must complete two semesters of the Research Residency, and BSN to PhD students must complete one semester of the Research Residency and the 2-semester Pilot study before defending their proposal. The Teaching Residency must be completed prior to graduation.

**Time Limitations:** Students in all paths have a seven year time limit to complete all requirements for the Ph.D. degree. The seven-year period begins with the end of the semester during which the student was admitted to doctoral study and was taking work toward meeting the requirements for the degree. Students whose seven-year time limit has expired may be considered for an extension, provided that the Qualifying Examination is passed and the Dissertation Proposal has been successfully defended. Subsequent extensions will not be considered in the absence of substantial progress during the previous year.

## Postdoctoral Study

The purpose of postdoctoral study is to develop scientists capable of sustaining independent research within the theoretical perspective of nursing science. Opportunities are available for postdoctoral study on an individual basis in relation to the specific interest of the applicant, and to the availability of expert faculty mentorship. Interested students should contact the Ph.D. Program Director at 313-577-0359.

## Ph.D. Curricular Options

The faculty of the College of Nursing has developed three curricular paths for students to accomplish the requirements for the Ph.D. in Nursing. These paths offer options to applicants based on their present educational level and professional career goal: one path for students entering the program post-B.S.N., one for those entering post-M.S.N, and

one is for those entering post-DNP. Full-time and part-time study options are available, fall, winter, spring and summer.

Students are advised to keep themselves informed of these requirements so that scheduling their courses will be consistent with prerequisite sequencing.

Post-D.N.P.- Ph.D.

Code	Title	Credits
Focus: Research and Nursing Knowledge Theory		
Nursing Transfer Courses Advisor Approved		30-32
NUR 8020	Theoretically-Based Nursing Inquiry	3
Domain of Knowledge		
NUR 8014	Health Interventions	3
NUR 8210	Determinants of Health and Health Disparities	3
Concentration Courses		
Concentration courses are taken to support the student's research interests. Six credits of concentration must be taken outside of the College of Nursing.		6
Research and Statistics		
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
NUR 8040	Quantitative Research Methods	3
NUR 8060	Qualitative Research Methods	3
NUR 8610	Applied Statistical Analysis for Health Care Research I	3
NUR 8612	Applied Statistical Analysis for Health Care Research II	3
NUR 8335	Grant Writing	3
Advanced Research Methods Elect. (from Nursing or another discipline)		3
Dissertation Research and Direction		
NUR 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
NUR 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
NUR 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
NUR 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
Total Credits		93-95

Post-M.S.N., Leading to the Ph.D.

Code	Title	Credits
Focus: Research and Nursing Knowledge		
Nursing Transfer Courses Advisor Approved		24
Theory		
NUR 8012	Philosophical Basis of Nursing	3
NUR 8020	Theoretically-Based Nursing Inquiry	3
Domain of Knowledge		
NUR 8210	Determinants of Health and Health Disparities	3
NUR 8011	Scientific Writing in Nursing	1
NUR 8014	Health Interventions	3
Concentration Courses		
Concentration courses are taken to support the student's research interests. Six credits of concentration must be taken outside of the College of Nursing.		6
Research and Statistics Courses		

GS 0900	Essential Research Practices: Responsible Conduct of Research	0
NUR 8040	Quantitative Research Methods	3
NUR 8060	Qualitative Research Methods	3
NUR 8610	Applied Statistical Analysis for Health Care Research I	3
NUR 8612	Applied Statistical Analysis for Health Care Research II	3
NUR 8335	Grant Writing	3
Advanced Research Methods Elect. (from Nursing or another discipline)		3
Dissertation Research and Direction		
NUR 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
NUR 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
NUR 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
NUR 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
Total Credits		91

Post-B.S.N., Leading to the Ph.D.

Code	Title	Credits
Focus: Research and Nursing Knowledge		
Theory		
NUR 7105	Theoretical Foundations for Nursing (Focus: Research and Nursing Knowledge)	3
NUR 8012	Philosophical Basis of Nursing	3
NUR 8020	Theoretically-Based Nursing Inquiry	3
Domain of Knowledge		
NUR 8210	Determinants of Health and Health Disparities	3
NUR 8011	Scientific Writing in Nursing	1
NUR 8014	Health Interventions	3
NUR 8630	Conceptual Methodologies in Health Policy Leadership and Ethics	3
Research and Statistics Courses		
GS 0900	Essential Research Practices: Responsible Conduct of Research	0
NUR 7000	Statistics in Nursing	3
NUR 8625	Evidence Based Nursing Practice: Theoretical and Methodological Issues	3
NUR 8040	Quantitative Research Methods	3
NUR 8060	Qualitative Research Methods	3
NUR 8610	Applied Statistical Analysis for Health Care Research I	3
NUR 8612	Applied Statistical Analysis for Health Care Research II	3
NUR 8085	Pilot Study - Part I	3
NUR 8185	Pilot Study - Part II	3
NUR 8335	Grant Writing	3
Advanced Research Methods Elect. (from Nursing or another discipline)		3
Concentration Courses		
Concentration courses are taken to support the student's research interests. Nine credits of concentration must be taken outside of the College of Nursing.		12
Dissertation Research and Direction		



NUR 9991	Doctoral Candidate Status I: Dissertation Research and Direction	7.5
NUR 9992	Doctoral Candidate Status II: Dissertation Research and Direction	7.5
NUR 9993	Doctoral Candidate Status III: Dissertation Research and Direction	7.5
NUR 9994	Doctoral Candidate Status IV: Dissertation Research and Direction	7.5
<b>Total Credits</b>		<b>91</b>

## Nursing and Infant Mental Health (D.N.P. or Ph.D. Dual-Title)

Students in the Ph.D. or D.N.P. programs in Nursing can apply to earn a Ph.D. in Nursing or a D.N.P. with a dual-title in Infant Mental Health (IMH). This dual-title degree is designed to prepare nurses to support early social and emotional development in a variety of contexts in which parents or children suffer from developmental disabilities, health problems, or mental health problems. The program prepares nurses to conduct research related to IMH or implement evidence-based IMH interventions to improve infant mental health. Students take courses in infant development and assessment, and develop specific skills related to infant mental health assessment and treatment. The dual-title coursework follows competencies outlined by the Michigan Association for Infant Mental Health that are required for endorsement as an infant mental health specialist or an infant mental health mentor.

### Admission Requirements

Students should contact the Director of Advanced Practice and Graduate Certificate Programs (ar2556@wayne.edu), the Director of the PhD Program (ag1605@wayne.edu), or the Infant Mental Health program director, Ann Stacks (amstacks@wayne.edu) early in their doctoral program to enroll in the dual-title program.

### Program Requirements

In addition to D.N.P. or Ph.D. requirements, students are required to complete at least 12 credits of infant mental health coursework, 9 credits of which can count toward their nursing degree. Both D.N.P. and Ph.D. students are required to take a 2-credit course in infant mental health (SW#7025), and select one (D.N.P.) or two (Ph.D.) IMH courses from a list of SW and PSY courses. Students must earn at least a 3.0 g.p.a. in their courses. All course work must be completed in accordance with the academic procedures of the College of Nursing and the Graduate School governing graduate scholarship and degrees.

#### Requirements for the D.N.P. with an IMH Dual-Title

Code	Title	Credits
SW 7025	Infant Mental Health: Theory to Practice across Early Childhood Settings	2
SW 7880 or SW 8880	Infant/Family Mental Health Assessment Infant Mental Health Practice	2
D.N.P. Courses that contain IMH Content – Select at least 8 Credits from the list below:		8
NUR 7030	Advanced Nursing Assessment	
NUR 7035	Family Centered Health Promotion and Risk-reduction	
NUR 8670	APN Specialty I: Foundations	
NUR 8210	Determinants of Health and Health Disparities	
NUR 8630	Conceptual Methodologies in Health Policy Leadership and Ethics	

PSY 7425	Psychology of Infant Behavior and Development	
<b>Total Credits</b>		<b>12</b>

D.N.P. students must also complete a D.N.P. Project related to infant mental health and have an infant mental health faculty member on their D.N.P. project committee.

#### Requirements for the Ph.D. with an IMH Dual-Title

Code	Title	Credits
SW 7025	Infant Mental Health: Theory to Practice across Early Childhood Settings	2
Select at least two of the following:		5-6
PSY 7425	Psychology of Infant Behavior and Development	
SW 7880	Infant/Family Mental Health Assessment	
SW 8880	Infant Mental Health Practice	
Elective Courses for Ph.D. IMH Dual-Title Students – Select at least 4-5 Credits		4-5
NUR 8014	Health Interventions	
NUR 8210	Determinants of Health and Health Disparities	
PSY 7425	Psychology of Infant Behavior and Development (if not chosen above)	
SW 7880	Infant/Family Mental Health Assessment (if not chosen above)	
SW 8880	Infant Mental Health Practice (if not chosen above)	
<b>Total Credits</b>		<b>12</b>

Ph.D. students must also complete a qualifying examination and a Doctoral Dissertation related to infant mental health. An IMH faculty member must be a member of the student's dissertation committee.

## Adult Gerontology Nurse Practitioner Acute Care (Graduate Certificate)

This Graduate Certificate Program allows certified advanced practice registered nurses, who have graduated with a clinical MSN or DNP, to acquire the nationally-specified adult-gerontology acute care content and clinical skills needed to take the national adult-gerontology acute care certification exam and then to function competently within the adult-gerontology acute care scope of practice. It will require satisfactory completion of a minimum of 18 credits of didactic content and clinical hours based on a GAP analysis. The certificate provides nurses with essential knowledge and skills to assume adult-gerontology acute care roles in a myriad of settings. Courses focus on integrating advanced health assessment, pathophysiology, and acute clinical care and management. Students will be expected to complete a minimum of 500 hours of acute care clinical hours as required to meet the specialty competencies and the requirements to take the Adult-Gerontology Nurse Practitioner Acute Care national certification exam.

### Admission Requirements

Starting fall 2024, admission to this program is through AACN supported universal application system, NursingCAS.

Admission to this program is contingent upon meeting the admission certificate program requirements and the availability of College of Nursing resources.

Applicants must satisfy the following criteria and submit the required documents for admission consideration:



1. Completion of a graduate (M.S.N or D.N.P.) clinical degree in Nursing from a nationally accredited institution with a grade point average (g.p.a.) of 3.0
2. Current Michigan Registered Nurse licensure.
3. Current specialty certification by a nationally recognized body in their area of specialization; applicant must upload the certificate.
4. A personal goal statement.
5. Two professional letters of recommendation.
6. Resume
7. Official transcripts from all postsecondary institutions.
8. If the student is currently enrolled in the D.N.P program, the certificate will not be awarded until the D.N.P. is posted on the transcript.

This certificate requires a minimum of 18 credits which must be earned within three years with no transfer credit accepted. Any additional requirements are determined by a GAP analysis. A grade point average of 3.0 must be maintained. All course work must be completed in accordance with the academic procedures of the College of Nursing and the Graduate School governing graduate scholarship and degrees.

#### Required Courses

Code	Title	Credits
NUR 7427	Adult-Gerontology ACNP. Management of Neurological, Endocrine & Musculoskeletal Problems - Didactic	2
NUR 7428	Adult-Gerontology ACNP. Management of Neurological, Endocrine & Musculoskeletal Problems - Clinical	4
NUR 7437	Adult-Gerontology Acute Care NP. Management of Cardiopulmonary and Renal Problems - Didactic	2
NUR 7438	Adult-Gerontology Acute Care NP. Management of Cardiopulmonary and Renal Problems - Clinical	4
NUR 7447	AG-ACNP. Management of Patients with Oncology, Hematology, Mental Health & Life Changes - Didactic	2
NUR 7448	AG-ACNP. Management of Patients with Oncology, Hematology, Mental Health & Life Changes - Clinical	4
<b>Total Credits</b>		<b>18</b>

## Nursing Education (Graduate Certificate)

This Graduate Certificate Program in Nursing Education is designed to prepare nurses for teaching positions in educational and service settings. The certificate provides nurses with essential knowledge and skills in teaching, program development, evaluation, clinical instruction, and other aspects of the educational process in nursing. Courses focus on concepts of learning; teaching methods and concepts of teaching in nursing; multimedia and computer-assisted instruction and distance education; development of educational programs in nursing; evaluation; testing; and clinical teaching from a theoretical and research perspective. The program provides learners with a theoretical framework for teaching in nursing and related competencies.

## Admission Requirements

Starting fall 2024, admission to this program is through AACN supported universal application system, NursingCAS.

Admission to this program is contingent upon meeting the admission certificate program requirements and the availability of College of Nursing resources.

Applicants must satisfy the following criteria and submit the required documents for admission consideration:

1. Completion of a Graduate degree in Nursing from a nationally accredited institution with a grade point average (g.p.a.) of 3.0 or concurrent enrollment in the MSN, DNP, or PhD program in good standing in the College of Nursing at Wayne State University
2. If the student is currently enrolled in one of the graduate programs, the certificate will not be awarded until the degree is posted to the transcript.
3. Current Michigan Registered Nurse licensure.
4. Personal goal statement.
5. Two professional letters of recommendation.
6. Resume.
7. Official transcripts from all postsecondary institutions.

## Program Requirements

The Graduate Certificate in Nursing Education requires twelve credits which must be earned within three years with no transfer credit accepted. A minimum grade point average of 3.0 must be achieved. All course work must be completed in accordance with the academic procedures of the College of Nursing and the Graduate School governing graduate scholarship and degrees. Nursing 7710 and 7720 must be completed prior to taking NUR 7730.

Code	Title	Credits
Graduate-level Nursing or Education course approved by advisor (may be applied toward Master's, DNP, or PhD degree if WSU student)		3
NUR 7710	Theoretical Perspectives of Teaching in Nursing	3
NUR 7720	Evaluation and Testing in Nursing Education	3
NUR 7730	Practice Teaching in Nursing	3
<b>Total Credits</b>		<b>12</b>

## Pediatric Nurse Practitioner Acute Care (Graduate Certificate)

This Graduate Certificate Program will allow primary care-certified pediatric nurse practitioners to acquire the nationally-specified pediatric acute and critical care content and clinical skills needed to take the national pediatric acute care certification exam and then to function competently within the acute care scope of practice. It will require satisfactory completion of twenty-four (24) credits of didactic content and clinical hours. The certificate provides nurses with essential knowledge and skills to assume acute care roles in a myriad of settings using a patient and family-centered care model. Courses focus on integrating advanced health assessment, pathophysiology, and acute clinical care and management. Specific clinical experiences in the courses will be tailored to meet the needs of individual graduate certificate students. Students will be expected to complete a minimum of 675 pediatric acute care clinical hours as required to meet the specialty competencies. Upon successful completion, graduates are eligible to take the Pediatric Nurse Practitioner-Acute Care national certification examination offered by the Pediatric Nursing Certifying Board (PNCB).

## Admission Requirements

Starting fall 2024, admission to this program is through AACN supported universal application system, NursingCAS.

Admission to this program is contingent upon meeting the admission certificate program requirements and the availability of College of Nursing resources.

Applicants must satisfy the following criteria and submit the required documents for admission consideration:

1. Completion of a graduate (M.S.N or D.N.P.) clinical degree in Nursing from a nationally accredited institution with a grade point average (g.p.a.) of 3.0
2. Current Michigan Registered Nurse licensure.
3. Current PNP-PC specialty certification by a nationally recognized body in their area of specialization and applicant must upload the certificate.
4. A personal goal statement.
5. Two professional letters of recommendations.
6. Resume.
7. Official transcripts from all postsecondary institutions.
8. If the student is currently enrolled in the D.N.P program, the certificate will not be awarded until the D.N.P. is posted on the transcript.

## Program Requirements

The Graduate Certificate in#Pediatric Nurse Practitioner Acute Care requires courses which must be taken in sequence over one calendar year with no transfer credit accepted. This certificate requires a minimum of twenty-four (24) credits which must be earned within three years. Any additional requirements are determined by a GAP analysis. A minimum grade point average of 3.0 must be achieved. All course work must be completed in accordance with the academic procedures of the College of Nursing#and theGraduate School#governing graduate scholarship and degrees.

Code	Title	Credits
NUR 7920	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management I - Didactic	4
NUR 7925	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management I - Clinical	4
NUR 7930	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care, and Management II -Didactic	3
NUR 7935	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management II -Clinical	5
NUR 7940	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management III- Didactic	2
NUR 7945	Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management III -Clinical	6
Total Credits		24

## Pediatric Nurse Practitioner Primary Care (Graduate Certificate)

This Graduate Certificate Program will allow acute care-certified pediatric nurse practitioners to acquire essential knowledge and skills in pediatric primary care with a particular focus on care of children with complex chronic conditions. It will require satisfactory completion of twenty-four (24) credits of didactic content and clinical hours. The certificate provides nurses with essential knowledge and skills to assume primary care roles in a myriad of settings using a patient and family-centered care model. Courses focus on integrating advanced health assessment, pathophysiology, primary care clinical care and management. Specific clinical experiences in the courses will be tailored to meet the needs of individual graduate certificate students. Students will be expected to complete a minimum of 675 primary care clinical hours as required to meet the specialty competencies. Upon successful completion, graduates are eligible to take the Pediatric Nurse Practitioner-Primary Care national certification examination offered by the Pediatric Nursing Certifying Board (PNCB).

## Admission Requirements

Starting fall 2024, admission to this program is through AACN supported universal application system, NursingCAS.

Admission to this program is contingent upon meeting the admission certificate program requirements and the availability of College of Nursing resources.

Applicants must satisfy the following criteria and submit the required documents for admission consideration:

1. Completion of a graduate (M.S.N or D.N.P.) clinical degree in Nursing from a nationally accredited institution with a grade point average (g.p.a.) of 3.0
2. Current Michigan Registered Nurse licensure.
3. Current PNP-AC specialty certification by a nationally recognized body in their area of specialization and applicant must upload the certificate.
4. A personal goal statement.
5. Two professional letters of recommendation.
6. Resume.
7. Official transcripts from all postsecondary institutions.
8. If the student is currently enrolled in the D.N.P program, the certificate will not be awarded until the D.N.P. is posted on the transcript.

## Program Requirements

The Graduate Certificate in#Pediatric Nurse Practitioner Primary Care requires courses which must be taken in sequence over one calendar year with no transfer credit accepted. This certificate requires a minimum of twenty-four (24) credits which must be earned within three years. Any additional requirements are determined by a GAP analysis. A minimum grade point average of 3.0 must be achieved. All course work must be completed in accordance with the academic procedures of theCollege of Nursing#and theGraduate School#governing graduate scholarship and degrees.

Code	Title	Credits
NUR 7670	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management I - Didactic	4

NUR 7675	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management I - Clinical	4
NUR 7680	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management II - Didactic	3
NUR 7685	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management II - Clinical	5
NUR 7690	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management III - Didactic	2
NUR 7695	Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management III - Clinical	6
<b>Total Credits</b>		<b>24</b>

## Psychiatric Mental Health Nurse Practitioner (Graduate Certificate)

This Graduate Certificate Program is designed to prepare nurses to assume primary care roles as a Psychiatric Mental Health Nurse Practitioner. The certificate provides nurses with essential knowledge and skills to assume psychotherapy, consultation, and liaison roles. Courses focus on systematic pathophysiology, pharmacotherapeutics interventions, advanced health assessment, and health policy and issues for advanced practice nurses.

### Admission Requirements

Starting fall 2024, admission to this program is through AACN supported universal application system, NursingCAS.

Admission to this program is contingent upon meeting the admission certificate program requirements and the availability of College of Nursing resources.

Applicants must satisfy the following criteria and submit the required documents for admission consideration:

1. Completion of a graduate (M.S.N or D.N.P.) clinical degree in Nursing from a nationally accredited institution with a grade point average (g.p.a.) of 3.0
2. Current Michigan Registered Nurse licensure.
3. Current specialty certification by a nationally recognized body in their area of specialization and applicant must upload the certificate.
4. Personal goal statement.
5. Two professional letters of recommendation.
6. Resume.
7. Official transcripts from all postsecondary institutions.
8. If the student is currently enrolled in the D.N.P program, the certificate will not be awarded until the D.N.P. is posted on the transcript.

### Program Requirements

The Psychiatric Mental Health Nurse Practitioner Graduate Certificate requires twenty-nine credits, which must be earned within three years with no transfer credit accepted. Additional courses may be required based on a GAP analysis. A minimum grade point average of 3.0 must be achieved. All course work must be completed in accordance with the academic procedures of the College of Nursing and the Graduate School governing graduate scholarship and degrees.

<b>Code</b>	<b>Title</b>	<b>Credits</b>
NUR 7650	Advanced Psychiatric Assessment and Diagnostic Reasoning	1
NUR 7615	Psychopathology and Therapeutic Frameworks Across the Lifespan for PMHMP	2
NUR 7625	Psychopharmacology	2
NUR 7460	Family Psychiatric Mental Health NP: Adv Practice Nursing with Individuals and Communities - Didactic	3
NUR 7465	Family Psychiatric Mental Health NP: Adv Practice Nursing with Individuals and Communities -Clinical	5
NUR 7470	Family Psychiatric Mental Health Nurse Practitioner: Advanced Practice Nursing with Groups -Didactic	3
NUR 7475	Family Psychiatric Mental Health Nurse Practitioner: Advanced Practice Nursing With Groups -Clinical	5
NUR 7480	Family Psychiatric Mental Health NP: Advanced Practice Nursing with Families - Didactic	3
NUR 7485	Family Psychiatric Mental Health NP: Advanced Practice Nursing with Families - Clinical	5
<b>Total Credits</b>		<b>29</b>

# Eugene Applebaum College of Pharmacy and Health Sciences

Dean: Brian Cummings

The Eugene Applebaum College of Pharmacy and Health Sciences (EACPHS) is a unit of the University formed by the collaboration of health science professions represented by the academic departments of:

- **Applied Health Sciences:** comprised of Medical Laboratory Science, Mortuary Science, and Pathologists' Assistant Studies.
- **Health Care Sciences:** comprised of Occupational Therapy, Nurse Anesthesia, Physical Therapy, Physician Assistant Studies, Radiation Therapy Technology, Radiologic Technology, and Radiologist Assistant Studies
- **Pharmaceutical Sciences**
- **Pharmacy Practice**

The College offers seventeen degrees and certificates. The academic programs of the College maintain autonomous admission requirements, curricula, degree requirements and academic procedures.

## History

The College of Pharmacy was founded in 1924. In 1974, the pharmacy unit merged with the Division of Health to form a College dedicated to educating the health care professionals in these fields. In 1985, the College of Pharmacy and Allied Health Professions became home to the Mortuary Science department, which had originated as a unit of the School of Business Administration in 1943.

In 1998, the State of Michigan set aside \$48.2 million for a new facility, based on the University's commitment to raise \$16.1 million from private sources. Eugene Applebaum, a 1960 alumnus of the College's pharmacy program and founder of Arbor Drug Stores, made a lead gift of \$5 million and agreed to chair the College's capital campaign. The new building, which opened in 2002 on the Detroit Medical center campus, features 270,000 square feet of learning and research space. The facility brings all departments of the College under one roof, except Mortuary Science and Clinical Laboratory Science, which have separate facilities.

## Location

The Eugene Applebaum College of Pharmacy and Health Sciences is a state-of-the-art teaching and research facility at the southwest gateway to the Detroit Medical Center, located at 259 Mack Avenue at John R Street, near the School of Medicine and Shiffman Medical Library. This facility provides notable clinical and research settings where students participate as part of their professional development.

## Mission

The mission of this college is to advance the health and well-being of society through the preparation of highly-skilled health care practitioners, and through research to discover, evaluate, and implement new knowledge to improve models of practice and methods of treatment in pharmacy and health sciences. It is the intent of this college to serve as a preeminent model of learning, scholarship, and engagement, impacting health, safety, and well-being worldwide through leadership, innovation, and the interconnectedness of its disciplines. To this end the College offers a variety of graduate-professional and graduate programs. They are designed to provide advanced-level professional training, basic research and scholarly activities in the various health science fields.

## Accreditation

The Higher Learning Commission accredits Wayne State University and professional programs in this College are accredited by their respective agencies:

### MEDICAL LABORATORY SCIENCE:

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 N. River Rd., Suite 720 Rosemont, IL 60018-5119, ph: 773.714.8880; fx: 773.714.8886; info@naaccls.org, (<http://www.naaccls.org/>)

### PATHOLOGIST'S ASSISTANT PROGRAM:

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS), 5600 N. River Rd., Suite 720, Rosemont, IL 60018-5119 ph: 773.714.8880; fx: 773.714.8886; info@naaccls.org, (<http://www.naaccls.org/>)

### NURSE ANESTHESIA:

Council on Accreditation of Nurse Anesthesia Educational Programs (COA), 10275 W. Higgins Rd., Suite 906, Rosemont, IL 60018-5603, <https://www.coacna.org/>

### OCCUPATIONAL THERAPY:

Accreditation Council for Occupational Therapy Education (ACOTE), 7501 Wisconsin Avenue, Suite 510E Bethesda, MD 20814 ([www.acoteonline.org](http://www.acoteonline.org)) (<http://www.acoteonline.org>)

### PHARMACY:

The Accreditation Council for Pharmacy Education (ACPE), originally founded as the American Council on Pharmaceutical Education: 135 S. LaSalle Street, Suite 4100 Chicago, Illinois 60603-4810; Phone: 312-664-3575; FAX: 312-664-4652; website: <http://www.acpe-accredit.org>

PHYSICAL THERAPY:

Commission on Accreditation in Physical Therapy Education (CAPTE), Attn: Accreditation Dept., 1111 N. Fairfax St., Alexandria VA 22314-1488 <http://www.capteonline.org/home.aspx>

PHYSICIAN ASSISTANT PROGRAM:

Accreditation Review Committee on Education for the Physician Assistant (ARC-PA), 12000 Findley Road, Suite 150, Johns Creek, GA, 30097, Phone: 770-476-1224, Fax: 770-476-1738  
<http://www.arc-pa.org/>

RADIATION THERAPY TECHNOLOGY:

Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 N. Wacker Drive, Suite 2850, Chicago IL 60606-3182 telephone: 312-704-5300; Fax: 312-704-5304; website: <http://www.jrcert.org/>

RADIOLOGIC TECHNOLOGY:

Joint Review Committee on Education in Radiologic Technology (JRCERT), 20 N. Wacker Drive, Suite 2850, Chicago IL 60606-3182; telephone: 312-704-5300; Fax: 312-704-5304; website: <http://www.jrcert.org>



# Academic Regulations

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations (p. 24) section of this bulletin. The following additions and amendments pertain to the College of Pharmacy and Health Sciences.

1. Professional course: any course required in the Pharm.D., D.P.T. or M.O.T curriculum and any course approved for professional elective credit and elected by the student for that purpose.
2. Satisfactory grade: a grade of 'C' or above, or a grade of 'S.'
3. Unsatisfactory grade: a grade of 'C-minus' or below 2.0 grade points, or a mark of 'X' or unauthorized 'W.' Marks of 'X' or marks of 'W' which have not been authorized will be treated as an 'F.'
4. Probation: a restricted status in a program (see below).
5. Dismissal from a program means that the student may no longer register in the program, or elect professional course work. Continued registration in the University requires that a Change of Status to another program be made.

## Academic and Professional Progress

The College expects its students to develop professional competence and to satisfy the same high standards of exemplary character, appearance, and ethical conduct expected of other health care professionals. To merit confidence and esteem, both personally and in the health care professions, appropriate dress and demeanor are expected of each student in their respective academic and professional program. Each program has a process or committee in place to review student performance regularly and makes decisions concerning probationary status. A student may be dismissed from the College at any time for an unsatisfactory academic or professional record, for irresponsible attendance, or other failures to diligently pursue the academic and professional program.

## Outside Employment

The curriculum has been arranged with the presumption that students will devote full time and energy to their academic program. Internships, fieldwork and other pharmaceutical employment is recognized as an integral part of the academic and professional growth of a pharmacy or health science student. However, students are responsible for maintaining the appropriate balance between such activity and satisfactory achievement in the classroom.

## Attendance

Regularity in attendance and performance is necessary for success in college work. At the beginning of each course the instructor will announce and/or include in the syllabus the specific attendance required of students as part of the successful completion of the course.

## Course Elections

The program must be elected on a full-time basis, following the curriculum as outlined in this bulletin, unless specifically directed otherwise by the Committee on Academic and Professional Progress and/ or the faculty.

No course may be elected unless a satisfactory grade has been earned in each of the course prerequisites. Registration to audit a course or for courses elected on a Satisfactory or Unsatisfactory (S or U) is permitted only for elective credits, in certain designated courses such as field work, practicum and internships, in excess of the minimum degree requirements, or by guest or post-degree students.

## Leaves of Absence

A leave of absence may, and should, be requested by a student when personal circumstances interfere with his/her ability to devote sufficient time to academic pursuits to assure reasonable expectations of success. A leave of absence is requested from and granted by the Dean (or designee) in consultation with the departmental committee or faculty advisor. If a student requests and is granted an immediate leave of absence during a term, it is the student's responsibility to follow the Academica procedures to withdraw from all courses enrolled in for that term as outlined by instructions found online (<http://reg.wayne.edu/students/information.php>).

A leave of absence must be requested no later than the end of the tenth week of the term, or in the case of courses not offered over a traditional semester, prior to completion of seventy-five per cent of the course, and requires a prior consultation with the student's faculty advisor, program director, department chair and/or the Assistant Dean for Student Affairs.

A student who takes an unauthorized leave of absence will be considered to have voluntarily withdrawn from the program and may be permitted to return only upon the recommendation of the Admissions Committee in consultation with the appropriate departmental committee or faculty advisor.

## Time Limitations

The program must be completed within six calendar years of admission unless an extension is granted by the appropriate departmental academic progress committee or faculty advisor (extensions are appropriate in circumstances such as a delay required to repeat a course preceding or following an authorized leave of absence or an authorized leave of absence that extends beyond one year).

Students who are delayed in their progress for reasons of academic failure and/or leaves of absence beyond the six-year limit may be required to repeat and/or take additional courses in order to assure their graduation with appropriate preparation for contemporary professional practice; such determination will be made by the appropriate departmental academic progress committee in consultation with appropriate faculty.

## Minimum Grade Requirement

No professional course in which an unsatisfactory grade is earned will be counted for degree credit in this program unless repeated for a satisfactory grade. Please refer to the specific program/ department Student Handbook for information regarding minimum grade requirements.

## Grade Appeals

Official Policies and Procedures  
College Policy No. 89.01 FINAL COURSE GRADE APPEALS

**Approved September 28, 2016 Provost Office addendum September 13, 2017. Provost Office update July 12, 2018, and November 13, 2018, February 23, 2021. Approved April 28, 2021.**

**THIS VERSION REPLACES AND SUPERSEDES ALL PRIOR VERSIONS OF FINAL COURSE GRADE APPEALS POLICY.** This policy is effective immediately for final course grades received for Fall 2016 and all terms going forward.

The following is the policy implemented for Final Course Grade Appeals in the Eugene Applebaum College of Pharmacy and Health Sciences. At the beginning of each term, the instructor is to inform students in writing of the criteria used in arriving at grades for the class including

the relative importance of prepared papers, quizzes and examinations, class participation and attendance. Where student performance in other practical and structured activities is relevant in evaluating professional competency, criteria used in such evaluations should be stated. Written materials should be graded in a timely manner and such materials, together with comments and an explanation of grading criteria, are to be made available to students. Students should be encouraged to discuss any class related problems with the instructor.

Instructors are expected to evaluate student work according to sound academic standards.

Equal expectations should be required of all students in a class (although more work is expected from graduate students than from undergraduates) and grades should be assigned without departing from announced procedures.

It is the instructor's prerogative to assign grades in accordance with his or her academic and professional judgment and the student assumes the burden of proof in the appeals process. Grounds for appeals are:

(1) evaluation of student work by criteria not directly reflective of performance relative to course requirements; (2) sexual harassment or discrimination; or (3) the application of non-academic criteria in the grading process, as listed in the university's non-discrimination/affirmative action statute: race, color, sex (including gender identity), national origin, religion, age, sexual orientation, familial status, marital status, height, weight, disability, or veteran status.

Final grade appeals and dismissal appeals that fail to cite one or more of the above criteria will be automatically and will not be considered on the merits. Dismissal for failure to cite appeal criteria does not extend the deadline for filing an amended appeal.

**This final course grade appeal policy does not apply to allegations of academic misbehavior.** Academic misbehavior matters are addressed by Section 10.1 of the WSU Student Code of Conduct (<https://doso.wayne.edu/pdf/student-code-of-conduct.pdf>).

**Definition: Instructor** - Instructor applies to full-time, fractional-time, part-time faculty as well as Graduate Teaching Assistants, Adjuncts, and Academic Staff with teaching duties.

## Final Course Grade Appeals Policy and Procedure

### Informal Final Course Grade Review

1. Prior to an appeal of a course final grade all issues must first be directed to the instructor of the course for consideration of resolution.
2. The initial request of a grade review should be made directly to the instructor in an informal discussion during office hours or by a requested scheduled appointment.
3. If a student has documented efforts to obtain an informal meeting with the instructor and is unable to schedule this meeting within ten calendar days the student will then have the right to proceed to a formal grade appeal within thirty calendar days following posting of the final course grade. The instructor should make every reasonable effort to meet with the student during this time period prior to a formal appeal.

### Formal Final Course Grade Appeal Policy and Procedure

If the final grade in question remains unchanged after the informal final course grade review, any formal Course Grade Appeal to change the grade in question must be initiated in writing by the student within thirty calendar days following the posting of the final course grade. The Student must submit a formal written appeal to the appropriate Department Chair. This formal appeal must include a copy of the current course syllabus and a student appeal letter including detailed

justification for the appeal. This documentation must explicitly state which of the three criteria of allowable rationales is applicable and how the alleged violation occurred.

## Formal Final Course Grade Appeal

1. The Department Chair shall provide a time-stamped and dated copy of the formal student course grade appeal to the instructor, program director or program/department grade appeal committee. The Department Chair (or designee) will then request input and/or response from the instructor, program director or the program/department grade appeal committee.
2. Student or Faculty involved in a grade appeal process may contact the University Ombuds Services at any time for assistance with any questions associated with a grade decision or the grade appeal process.
3. The Department Chair (or designee) may convene an ad hoc special review committee (or charge an existing committee) to advise on any dispute.
4. The Department Chair (or designee) shall review all documentation and respond in writing to the student within thirty calendar days of receiving the formal course grade appeal. The Department Chair (or designee) will place, in writing, the final decision to the student, instructor, program director, program/department grade appeal committee or the reason for any delay in decision. The decision of the Department Chair (or designee) can be appealed to the Office of the Dean.
5. Appeals to the Office of the Dean must be submitted in writing within ten calendar days of the postmarked response from the Department Chair (or designee). The Dean or his/her designee must respond to the student appeal within thirty calendar days. The decision of the Dean or his/her designee is the final decision at the College level.
6. If the appeal is denied at the Dean (or designee) of the College level, and the College appeal path is exhausted, if the student wishes to continue with the grade appeal process, per the University Academic policy (<https://provost.wayne.edu/academic-policy/>), the student may request a Provost Review within 30 days of this decision. The request should be addressed to Dr. R. Darin Ellis, Associate Provost for Academic Programs. **The request should be submitted via the online appeal form** (<https://provost.wayne.edu/provostappealprocedure/>). For assistance with the appeal process, the student may contact Ombuds Services (<https://wayne.edu/ombuds/>). The student's formal appeal for Provost Review must include a copy of the current course syllabus, the initial student appeal letter including detailed justification for the appeal, the Department Chair's (or designee's) response letter, and the Dean's (or designee's) written response. The decision of the Provost or his/her designee is final. No further appeal is possible.

## Dismissal Policy

College Policy No. 89.06

Established and Approved September 28, 2016

The following is the policy implemented when a student has been dismissed from a program or department in the Eugene Applebaum College of Pharmacy and Health Sciences. Specific guidelines for dismissal are available (by programs and departments) in student handbooks and in other electronic formats on program, department, and College web pages.

## Combined Grade Appeal/Dismissal Policy

If the final course grade leads to dismissal, the dismissal will be considered simultaneously in the final course grade appeal process. There is no separate or additional appeal process for a dismissal based on a final course grade. This would be referred to as a "combined" appeal.

In the event the combined final grade/dismissal appeal is denied by the Dean (or designee) a final appeal can be made by the student to the Provost as part of the combined grade appeal/dismissal process.

If dismissal results from an unprofessional behavior violation or other non-academic reason (<https://doso.wayne.edu/conduct/nonacademic-misconduct/>) not addressed within the program or department student handbook, the **WSU Student Code of Conduct** will be applied. Academic misbehavior matters are addressed by Section 10.1 of the **WSU Student Code of Conduct**.

**Definition: Instructor** - Instructor applies to full-time, fractional-time, part-time faculty as well as Graduate Teaching Assistants, Adjuncts, and Academic Staff with teaching duties.

## Combined Grade Appeal/Dismissal Policy and Procedure

### Informal Grade Appeal/Dismissal Review

1. Prior to a combined appeal of a grade/dismissal all issues must first be directed to the instructor of the course for consideration of resolution.
2. The initial request should be made directly to the instructor in an informal discussion during office hours or by a requested scheduled appointment.
3. If a student has documented efforts to obtain an informal meeting with the instructor and is unable to schedule this meeting within ten calendar days the student will then have the right to proceed to a formal combined grade appeal/dismissal process. The instructor should make every reasonable effort to meet with the student during this time period prior to a formal appeal.

### Formal Combined Grade Appeal/Dismissal Appeal Policy and Procedure

If the dismissal status remains unchanged after the informal meeting with the instructor, the formal Grade Appeal/Dismissal process must be initiated in writing by the student within thirty calendar days following the notification of the final course grade that precipitated the dismissal. The student must submit a formal written appeal together with a completed a grade/dismissal appeal form prescribed by the College to the appropriate Department Chair (or designee). This formal appeal must include a copy of the current course syllabus and a student appeal letter including detailed justification for the appeal of the dismissal.

### Formal Combined Grade Appeal/Dismissal Process

1. The Department Chair (or designee) shall provide a time-stamped and dated copy of the formal student dismissal appeal to the instructor, program director or program/department appeal committee. The Department Chair (or designee) will then request input and/or response from the instructor, program director or the program/department appeal committee.
2. Student or Faculty involved in a dismissal appeal process may contact University Ombuds Services at any time for assistance with any questions associated with a grade decision or the grade appeal/dismissal process.
3. The Department Chair (or designee) may convene an ad hoc special review committee (or charge an existing committee) to advise on any dismissal.
4. The Department Chair (or designee) shall review all documentation and respond in writing to the student within thirty calendar days of receiving the formal dismissal appeal. The Department Chair (or designee) will place, in writing, the final decision to the student, instructor, program director, program/department appeal committee or the reason for any delay in decision. The decision of the Department Chair (or designee) can be appealed to the Dean.
5. Appeals to the Dean must be submitted in writing within ten calendar days of the postmarked response from the Department Chair (or

designee). The Dean or his/her designee must respond to the student appeal within thirty calendar days. The decision of the Dean or his/her designee is the final decision at the College level.

6. If the appeal is denied at the Dean (or designee) of the College level and the College appeal path is exhausted, if the student wishes to continue with the final grade/dismissal appeal process, per the University Academic policy, the student may request a Provost Review within 30 days of this decision. The request should be addressed to Dr. R. Darin Ellis, Associate Provost for Academic Programs. **The request should be submitted via the online appeal form.** For assistance with the appeal process, the student may contact Ombuds Services. The student's combined grade appeal/dismissal for Provost Review must include a copy of the current course syllabus, the initial student appeal letter including detailed justification for the appeal, the Department Chair's (or designee's) response letter, and the Dean's (or designee's) written response. The decision of the Provost or his/her designee is final. No further appeal is possible.

## Dismissal Policy and Procedure

This applies to appeals of any and all dismissals that occurred because of academic, non-academic, or professional behavior violations.

### Informal Dismissal Review

1. Prior to a dismissal all issues must first be directed to the instructor of the course for consideration of resolution.
2. The initial request should be made directly to the instructor in an informal discussion during office hours or by a requested scheduled appointment.
3. If a student has documented efforts to obtain an informal meeting with the instructor and is unable to schedule this meeting within ten calendar days the student will then have the right to proceed to a formal dismissal appeal process. The instructor should make every reasonable effort to meet with the student during this time period prior to a formal appeal.

### Formal Dismissal Appeal Policy and Procedure

If the dismissal status remains unchanged after the informal meeting with the instructor, the formal dismissal process must be initiated in writing by the student within thirty calendar days following the notification of the action that precipitated the dismissal. The student must submit a formal written appeal to the appropriate Department Chair (or designee). This formal appeal must include a letter including detailed justification for the appeal of the dismissal.

### Formal Dismissal Process

1. The Department Chair (or designee) shall provide a time-stamped and dated copy of the formal student dismissal appeal to the instructor, program director or program/department appeal committee. The Department Chair (or designee) will then request input and/or response from the instructor, program director or the program/department appeal committee.
2. Student or Faculty involved in a dismissal appeal process may contact University Ombuds Services at any time for assistance with any questions associated with the dismissal process.
3. The Department Chair (or designee) may convene an ad hoc special review committee (or charge an existing committee) to advise on any dismissal.
4. The Department Chair (or designee) shall review all documentation and respond in writing to the student within thirty calendar days of receiving the formal dismissal appeal. The Department Chair (or designee) will place, in writing, the final decision to the student, instructor, program director, program/department appeal

committee or the reason for any delay in decision. The decision of the Department Chair (or designee) can be appealed to the Dean.

5. Appeals to the Dean must be submitted in writing within ten calendar days of the postmarked response from the Department Chair (or designee). The Dean or his/her designee must respond to the student dismissal appeal within thirty calendar days. The decision of the Dean or his/her designee is the final decision at the College level.
6. If the appeal is denied at the Dean (or designee) of the College level and the College appeal path is exhausted, if the student wishes to continue with the final grade/dismissal appeal process, per the University Academic policy, the student may request a Provost Review within 30 days of this decision. The request should be addressed to Dr. R. Darin Ellis, Associate Provost for Academic Programs. **The request should be submitted via the online appeal form.** For assistance with the appeal process, the student may contact Ombuds Services. The student's combined grade appeal/dismissal for Provost Review must include a copy of the current course syllabus, the initial student appeal letter including detailed justification for the appeal, the Department Chair's (or designee's) response letter, and the Dean's (or designee's) written response. The decision of the Provost or his/her designee is final. No further appeal is possible.

### Suspension

In extenuating circumstances, a suspension may be recommended during the appeal process. Suspension is a temporary removal of a student from participation in educational activities. While suspended, the student is placed on an administrative leave of absence.

Suspension may occur for failure to meet program/department, College or University requirements, because of a serious allegation of unprofessional behavior, or when a student is deemed to be a danger to others or him/herself. A recommendation for suspension can be made in writing to the student by the Assistant Dean for Student Affairs, the Associate Deans for Pharmacy or Health Sciences in consultation with the Dean of Students or the Office of the Provost.

### Dismissal Policies Listed by Program/Department

In order to maintain the accuracy of program specific policies, students should refer to their respective professional program or department resources, including handbooks or other sources in Canvas applicable dismissal policy information.

## Student Conduct

Every student is subject to all regulations set forth by the University and the College governing student activities and student behavior in the use of University facilities. The University and the College have responsibility for making these regulations available and it is the student's responsibility to become thoroughly familiar with all regulations and to seek any necessary clarification. Questions and concerns regarding regulations should be brought to the attention of the appropriate faculty member and/or the Dean's office.

There are obligations inherent in registration as a student in the College. Students entering the health science and pharmacy professions are expected to have the highest standards of personal conduct. When there are reasonable grounds to believe a student has acted in a manner contrary to ethical standards, the law, or mores of the community, such student may be disciplined. This discipline may include suspension or dismissal from the program after due process in accord with published policies and the Student Code of Conduct.

## Applied Health Sciences

*Chairperson:* Mark Evelyn

The mission of the Department of Applied Health Sciences is to provide students with highly effective and quality educational experiences that address contemporary challenges directly impacting public health, health care, environmental and workplace issues.

- Pathologists' Assistant (M.S.) (p. 355)

## Pathologists' Assistant (M.S.)

*Office:* 338 Mort Sci; 313-577-2050

*Program Director:* Veralucia Mendes-Kramer

<http://cphs.wayne.edu/pathologists-assistant/>

The Pathologists' Assistant is academically and clinically prepared to assist pathologists in anatomic, surgical, autopsy and forensic pathology as well as ancillary services defined by the American Association of Pathologists' Assistants. The Wayne State University Pathologists' Assistant program trains individuals who will assist pathologists in the performance of postmortem examination and in the dissection, dictation, and evaluation of surgical specimens for microscopic diagnosis. The program also provides individuals with budgetary, supervisory, and teaching skills. Lastly, the program trains individuals to function as competent entry-level pathologists' assistants capable of performing, under the supervision of a pathologist, those professional responsibilities as defined by the American Association of Pathologists' Assistants (AAPA). The Pathologists' Assistant program is accredited by the National Accrediting Agency of Clinical Laboratory Sciences (NAACLS), 5600 N. River Road, Suite 720, Rosemont, IL 60018-5119, 847-939-3597, 773-714-8880, Fax: 773-714-8886, <http://www.naacls.org> (<http://www.naacls.org/>).

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Applicants must have a bachelor's degree (BA or BS) from an accredited college or university. In addition, students must:

1. have a minimum cumulative and prerequisite undergraduate grade point average of 3.0;
2. complete all prerequisite coursework with a minimum of a C or higher;
3. submit two letters of recommendation;
4. complete the TOEFL exam if English is not the first language;
5. submit a WES course-by-course evaluation of foreign transcripts;
6. provide documentation of 8 hours of shadowing experience in a pathology lab setting and 5 hours (or one autopsy) in a medical examiner/coroner setting;
7. attend one information meeting in the year of application.

## Admission Interview

Interview is by invitation only to those candidates who have satisfied all requirements for admission. Interviews are extended only to the most competitive candidates owing to the limited number of seats in the program. Meeting the minimum requirements to the program does not ensure an offer for an interview.

## General Information Meetings

The Eugene Applebaum College of Pharmacy and Health Sciences hosts general information meetings (<http://cphs.wayne.edu/>)



meetings.php) on the first Tuesday of each month at 6:00 p.m. Meetings are held through Zoom.

Prerequisite Study

In addition, the following course work must have been successfully completed with a grade of C or higher in order to be considered for admission. Prerequisites listed below must be completed within the six years prior to the date of applying to this degree program.

- Two Biology courses (higher than BIO 1050)
- Microbiology with or without lab
- Anatomy and Physiology with lab
- General Chemistry with lab
- Organic Chemistry with lab
- Mathematics (MAT 1000 or higher) or Statistics
- English Composition

Program Deadlines

The program admits students annually to begin the program’s curriculum in the spring semester, which begins in May. All prerequisite coursework must be completed by December 30th for Spring/Summer admission consideration.

- Application due date for spring 2025: Jan. 15, 2025 (all prerequisite coursework complete by December 30th, 2024)
- Application due date for spring 2026: Jan. 15, 2026 (all prerequisite coursework complete by December 30th, 2025)
- Application due date for spring 2027: Jan. 15, 2027 (all prerequisite coursework complete by December 30th, 2026)

Program Requirements

The Master of Science in Pathologists’ Assistant is offered under a Plan C option and requires completion of 80 credits of coursework as outlined below. All coursework must be completed in accordance with the academic procedures of the Graduate School (p. 24) governing graduate scholarship and degrees and the College of Pharmacy and Health Sciences (p. 352). A grade of ‘C’ in any graduate course is unacceptable.

Code	Title	Credits
Academic Year 1 – 45 credits		
Spring/Summer Semester		
Total Semester Credits: 15 credits		
PAA 5020	Applied General Pathology	
PAA 5050	Clinical Terminology and Methodology I for the Pathologists’ Assistant	
PAA 5100	Medical Photography and Techniques in Pathology	
PAA 6560	Human Histology and Clinical Correlations I (Spring only)	
PAA 7060	Human Anatomy and Physiology for Pathologists’ Assistants	
PAA 7250	Clinical Pathology I	
PAA 6420	Laboratory Management and Quality Management in Anatomic Pathology (Summer only)	
Fall Semester		
Total Semester Credits: 15 credits		
PAA 5051	Clinical Terminology and Methodology II for the Pathologists’ Assistant	
PAA 5200	Medical Microbiology for Technical Professionals: Pathologists’ Assistant	
PAA 6060	Human Embryology and Pediatric Pathology	
PAA 6561	Human Histology and Clinical Correlations II	

PAA 7061	Human Anatomy and Physiology II for the Pathologists’ Assistant
PAA 7251	Clinical Pathology II
Winter Semester	
Total Semester Credits: 15+ credits	
PAA 5052	Clinical Terminology and Methodology III for the Pathologists’ Assistant
PAA 6150	Histochemistry for the Pathologists’ Assistant
PAA 7062	Neuroanatomy for the Pathologists’ Assistant
PAA 7063	Advanced Human Gross Anatomy (Elective)
PAA 7200	Introduction to Autopsy Techniques and Forensic Pathology
PAA 7210	Introduction to Autopsy Techniques and Forensic Pathology: Laboratory
PAA 7252	Clinical Pathology III
PAA 7420	Future Trends in Pathology Practice and Education Methodology
Clinical Year 2 – 35 credit	
Spring/Summer Semester	
Total Semester Credits: 8+ credits	
PAA 7650	Surgical Pathology I
Fall Semester	
Total Semester Credits: 11+ credits	
PAA 7651	Surgical Pathology II
PAA 7890	Surgical and Forensic Pathology Seminar I
Winter Semester	
Total Semester Credits: 11+ credits	
PAA 7652	Surgical Pathology III
PAA 7891	Surgical and Forensic Pathology Seminar II
Open Enrollment Second Year Courses	
PAA 7700	Forensic and Clinical Autopsy Pathology
PAA 7900	Elective Clinical in Surgical and/or Forensic Pathology
PAA 7901	Elective Independent Study in Surgical and/or Forensic Pathology

Background Screen

Admission into the program is conditional until which time all admitted candidates complete a Background Screen.

Physical Examination

All applicants are required to submit a complete physical examination form to the program, which must include a complete immunization record, showing evidence of: HBV antibody titre, TB status, MMR, Chickenpox/Varicella, COVID-19, and flu vaccination record.

Liability Insurance

Clinical Education is provided during both year I and II of the program, along with didactic and laboratory courses. Year II of the program is spent in clinical rotations through various selected clinical facilities throughout the metropolitan Detroit area, Michigan and other parts of the country, handling patient’s specimens and decedent remains. Therefore, all students are required to maintain liability insurance, which will be purchased during both years of the program as a separate fee from those courses the student enrolls in. In addition, the student is responsible for the cost of health insurance and all other costs (such as travel, meals, and living expenses) associated with the clinical education of the program.



# Health Care Sciences

*Interim Chairperson:* Diane Adamo

The Department of Health Care Sciences consists of six programs that share a common theme of excellence in the education and training of those involved in patient care. The department is housed in the Eugene Applebaum College of Pharmacy and Health Sciences (EACPHS) building which is near main, large health care institutions and close to the Wayne State University Medical School. Many of the department's faculty, who are involved in health care related research, offer students opportunities to assist in research. This has enabled greater appreciation for health care management and clinical decision-making.

- Nurse Anesthesia (<http://bulletins.wayne.edu/graduate/college-pharmacy-health-sciences/health-care-sciences/anesthesia-nurse/>)
- Occupational Therapy (M.O.T.) (p. 358)
- Occupational Therapy (O.T.D.) (<http://bulletins.wayne.edu/graduate/college-pharmacy-health-sciences/health-care-sciences/graduate/college-pharmacy-health-sciences/health-care-sciences/occupational-therapy-doctorate-otd/>)
- Physical Therapy (D.P.T.) (p. 359)
- Physician Assistant Studies (M.S.) (p. 361)

## Nurse Anesthesia Practice (D.N.A.P.)

*Offices:* 4601-4606 CPHS

*Program Director:* Mary Walczyk; DNP, CRNA, 4601 CPHS; 313-577-7689; [mary.walczyk@wayne.edu](mailto:mary.walczyk@wayne.edu)

*Assistant Program Director:* Jessica Phillips, PhD, CRNA; 313-577-9239; [jessica.montrief@wayne.edu](mailto:jessica.montrief@wayne.edu)

<https://cphs.wayne.edu/nurse-anesthesia/> (<https://cphs.wayne.edu/nurse-anesthesia/>)

The program strives to produce highly skilled certified registered nurse anesthetists capable of providing excellent anesthesia care to diverse populations in all settings where anesthesia practice or knowledge is required. We aim to cultivate appropriate learning environments essential to academic excellence, necessary to incorporate advanced knowledge and prepare a diverse body of students to thrive and positively impact local and global communities. The program promotes research activities to enhance the knowledge and understanding of best practices important to a diverse patient population with a focus on quality patient outcomes. The program also focuses on developing mechanisms to build new and innovative partnerships across a variety of healthcare disciplines.

## Accreditation

The program is fully accredited by the Council on Accreditation (COA) of Nurse Anesthesia Educational Programs.

10275 W. Higgins Rd., Suite 906, Rosemont, IL 60018-5603

## Admission Requirements

Admission to this program is conducted through applications submitted to the Centralized Application Service (NursingCAS) CAS application (<https://nursingcas.liaisoncas.org/apply/>) and is contingent upon admission to the Graduate School (<https://bulletins.wayne.edu/graduate/general-information/admission/>).

To be eligible to apply to the Nurse Anesthesia program, applicants must have the following:

- Baccalaureate degree in nursing or graduate degree in nursing from an accredited program

- A minimum of one undergraduate course (3 credits) of Chemistry: Organic or Biochemistry (No General Chemistry) taken within 10 years of application with a final grade of "B" or higher
- A minimum of one undergraduate course (3 credits) of Microbiology or Anatomy & Physiology taken within 10 years of application with a final grade of "B" or higher
- Overall minimum GPA of 3.0 or higher for the last 60 credits completed
- Overall minimum Nursing GPA of 3.0 or higher
- Overall Science GPA of 3.0 or higher
- Current RN licensure
- Current Advanced Cardiac Life Support (ACLS)
- Current Pediatric Advanced Life Support (PALS)
- CCRN Certification
- Currently employed in an ICU (SICU, MICU, CICU, Neurotrauma, Pediatric ICU in an academic teaching setting). PACU and ER employment are not accepted as ICU experience, with a minimum of one-year full time ICU experience.
- Shadowing experience at your hospital of employment.
- Applicant Personal Statement — a summary (1-2 pages) double-spaced highlighting your professional nursing career. Please include reasons for desiring the nurse anesthesia profession.
- Three (3) professional references are required— two (2) from current ICU RN co-workers and one (1) from your immediate RN ICU supervisor. You will send the requests electronically in CAS to the three individuals you want to complete them and these individuals must submit their completed recommendations electronically via the Centralized Application System.
- If coursework was completed at a non-US institution, students must obtain a course-by-course evaluation of their transcripts by World Education Services: [www.wes.org](http://www.wes.org) (<http://www.wes.org/>). The results of the evaluation must be sent to Wayne State University and the Centralized Application System.
- Complete WSU Graduate Application (<https://gradslate.wayne.edu/apply/>) at time of admission offer.

Please consult the WSU NA Website (<https://cphs.wayne.edu/nurse-anesthesia/admission-requirements.php>) for a complete list of admission criteria.

All deadlines noted on this website must be abided by in order to be considered for admission to the WSU NA program. Due to the highly competitive nature of admission to this program, successful completion of all admission requirements does not guarantee admission to the program.

## Admission Interview

A personal interview will be granted to select individuals who meet all admission requirements and have submitted the CAS application and the WSU Graduate Application by the admissions deadlines.

Completion of the personal interview does not guarantee admission to the Wayne State University Nurse Anesthesia Program. Admission to the program is competitive. Students who are offered admission to the WSU NA program will have a Criminal Background Check performed by Certiphi, Inc. Matriculation into the program will depend on the results of that check, and successful completion of the WSU Graduate Application.

## Program Requirements

The Doctor of Nurse Anesthesia Practice (DNAP) degree is 87 credits taken over nine semesters. Graduates are eligible to take the National Certification Examination (NCE) given by the National Board of

Certification and Recertification for Nurse Anesthetists (NBCRNA). The nurse anesthesia program is offered full-time only. All course work must be completed in accordance with the academic procedures of the Graduate School (p. 24) governing graduate scholarship and degrees and the College of Pharmacy and Health Sciences (p. 352), respectively, and in accordance with the Nurse Anesthesia Student Handbook. No course work may be transferred or substituted for credit into the Wayne State University DNAP curriculum.

<b>First Year</b>		
<b>Fall Semester</b>		<b>Credits</b>
AN 7010	Advanced Health Assessment and Clinical Diagnosis	3
AN 7100	Advanced Pharmacology I	3
AN 7220	Advanced Physiology I	3
AN 7500	Physics, Equipment, and Safety for Anesthesia	2
AN 7780	Professional Dimensions	3
<b>Credits</b>		<b>14</b>
<b>Winter Semester</b>		
AN 7020	Practicum and Simulation I	2
AN 7110	Advanced Pharmacology II	3
AN 7150	Principles of Anesthesia I	3
AN 7240	Advanced Physiology II	3
<b>Credits</b>		<b>11</b>
<b>Spring/Summer Semester</b>		
AN 7030	Advanced Clinical Practicum II	2
AN 7160	Principles of Anesthesia II	3
AN 7640	Research and Statistics	3
<b>Credits</b>		<b>8</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
AN 7040	Clinical Anesthesia Practicum III	2
AN 7170	Principles of Anesthesia III	3
AN 7600	Regional Anesthesia	3
AN 7890	DNAP Project Proposal	1
AN 7880	Anesthesia Seminar	1
<b>Credits</b>		<b>10</b>
<b>Winter Semester</b>		
AN 7050	Clinical Anesthesia Practicum IV	2
AN 7181	Advanced Principles of Anesthesia IV	3
AN 8000	DNAP Project I	1
AN 7880	Anesthesia Seminar	1
AN 7241	Pathophysiology	3
<b>Credits</b>		<b>10</b>
<b>Spring/Summer Semester</b>		
AN 7060	Clinical Anesthesia Practicum V	3
AN 7903	Health Care Policy	3
AN 7901	Leadership in Nurse Anesthesia Practice	3
AN 8001	DNAP Project II	1
<b>Credits</b>		<b>10</b>
<b>Third Year</b>		
<b>Fall Semester</b>		
AN 7070	Clinical Anesthesia Practicum VI	3
AN 7902	Ethics and Health Care	3
AN 8002	DNAP Project III	1
AN 7880	Anesthesia Seminar	1
<b>Credits</b>		<b>8</b>
<b>Winter Semester</b>		
AN 7080	Clinical Anesthesia Practicum VII	3
AN 7891	Advanced Clinical Application I	2
AN 8003	DNAP Project IV	2
AN 7880	Anesthesia Seminar	1
<b>Credits</b>		<b>8</b>
<b>Spring/Summer Semester</b>		
AN 7090	Clinical Anesthesia Practicum VIII	3
AN 7892	Advanced Clinical Application II	3

AN 8004	DNAP Project Completion	2
<b>Credits</b>		<b>8</b>
<b>Total Credits</b>		<b>87</b>

## Pediatric Anesthesia (Graduate Certificate)

Developed in collaboration with Children's Hospital of Michigan (CHM), the Graduate Certificate in Pediatric Anesthesia is offered to graduates with a Master of Science in Anesthesia from an accredited program who wish to specialize in pediatric anesthesia. Students completing the Master of Science in Anesthesia may apply to the program during their last semester of the curriculum.

Applicants must meet the admission requirements of the Graduate School (p. 21). Applicants must meet with the course coordinators from Children's Hospital to assess availability and applicant eligibility to enter the program. Admission application and registration for classes are all completed on line. Upon completion of the program, the graduate must apply on line for a Post-masters Certificate in Pediatric Anesthesia.

Students in the certificate program must maintain a grade point average of at least 3.0. All course work must be completed in accordance with the academic procedures of the Graduate School (p. 24) governing graduate scholarship and degrees and the College of Pharmacy and Health Sciences (p. 352). For additional information, contact the Nurse Anesthesia Program and the coordinator for Children's Hospital Anesthesia Department.

Courses and Clinical requirements:

Code	Title	Credits
AN 7070	Clinical Anesthesia Practicum VI	3
AN 7080	Clinical Anesthesia Practicum VII	3
AN 7090	Clinical Anesthesia Practicum VIII	3
AN 7900	Advanced Pediatric Topics	2
AN 7910	Special Topics in Pediatric Anesthesia	2
AN 7920	Case Presentations	2

## Occupational Therapy (M.O.T.)

*An admissions moratorium is in effect for the M.O.T. program.*

Office: Room 2226 CPHS: 313-577-5884  
 Program Director: Doreen Head  
 Admissions Coordinator: Regina Parnell  
 Fieldwork Education Level I and II: Kim Banfill  
 Department Secretary: Genevieve Zidzik  
 Administrative Assistant: Raquel Burchett  
<http://cphs.wayne.edu/ot/>

The Master of Occupational Therapy (M.O.T.) program is the entry-level program for occupational therapy, and is endorsed by the American Occupational Therapy Association (AOTA) and the Accreditation Council for Occupational Therapy Education (ACOTE).

The goal of this entry-level program is to educate individuals to become occupational therapy health care professionals. It is designed as a two and one-half year program. Students must complete a bachelor's degree program prior to admission. Upon completion of the M.O.T. degree, students are eligible to sit for the national certification and examination procedures of the National Board of Certification in Occupational Therapy. A state License to practice is required after successful completion of the NBCOT certification examination.

# Accreditation

The M.O.T. program at Wayne State University is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE), the accrediting body of the American Occupational Therapy Association (AOTA). The address for ACOTE is:

ACOTE, C/O Accreditation Department  
American Occupational Therapy Association (AOTA)  
7501 Wisconsin Avenue,  
Suite 510E Bethesda, MD 20814

The courses prepare students to take the National Certification Examination (National Board for Certification in Occupational Therapy (<http://www.nbcot.org>)).

One Bank Street Suite 300.  
Gaithersburg MD 20878.  
Phone: 301-990-7979.  
[Info@nbcot.org](mailto:Info@nbcot.org).  
American Occupational Therapy Association, Inc. (<http://www.aota.org>)  
telephone: 301-652-6611; Fax: 301-652-7711

# Admission Requirements

**Admission:** Applicants must meet the admission standards of the Graduate School (p. 21). Please contact the Occupational Therapy Program for further information.

**Professional Program Admission:** Applicants must apply for admission to the professional program, using the Occupational Therapy Centralized Application Service (OTCAS) Application (<https://portal.otcas.org/>), and be formally admitted at the graduate level. All applicants must hold a minimum grade point average of 3.0 or above for the professional program. All prerequisite courses must be completed with grades of ‘C’ or better. No more than two professional core prerequisite courses may be repeated to improve grades. In addition, the applicant must:

- 1. complete twenty hours of contact with a registered occupational therapist and provide documentation of this;
- 2. complete a Program Personal/Professional Statement;
- 3. submit a letter of recommendation from a current or former supervisor.

Students who have no work experience may seek a recommendation from an instructor of one of the Occupational Therapy Core Courses. For a checklist of application requirements, visit the program website. All applicants must apply through the OTCAS.

Each student is assigned a faculty advisor upon admission to the M.O.T. program. After completion of the graduate coursework, each student will be assigned a Level II Fieldwork Coordinator faculty advisor, to counsel the student for the remainder of the program.

The M.O.T. program consists of a minimum of 93 credits in coursework and fieldwork. All course work must be completed in accordance with the academic procedures of the Graduate School (p. 24) governing graduate scholarship and degrees and the College of Pharmacy and Health Sciences (p. 352).

# M.O.T. Professional Graduate Program

First Year		
Spring/Summer Semester		Credits
OT 5505	Clinical Applications of Human Anatomy	3
OT 5510	Clinical Applications of Human Anatomy: Laboratory	1
OT 6065	Occupational Therapy Research II	1
Credits		5

Fall Semester		
OT 5010	Foundations of Occupational Therapy and Occupational Science	4
OT 5300	Surface Anatomy for Occupational Therapy	2
OT 5310	Movement Assessment and Intervention	4
OT 5400	Neurosciences for Health Care Professionals	3
OT 5410	Health Conditions I: Physical Disabilities	4
Credits		17
Winter Semester		
OT 5220	Therapeutic Media	2
OT 5420	Health Conditions II: Mental Health	4
OT 6060	Occupational Therapy Research I	3
OT 6100	Occupational Therapy Assessments and Interventions I (Ortho)	5
OT 6230	Motor Control	3
Credits		17
Second Year		
Spring Semester		
OT 5055	Life Occupations I	3
OT 5150	Cognition and Visual Perception	3
Credits		6
Fall Semester		
OT 5065	Life Occupations II	3
OT 5610	Group Dynamics	5
OT 6070	Occupational Therapy Research III	2
OT 6200	Occupational Therapy Assessments and Interventions II	5
Credits		15
Winter Semester		
OT 6140	Environment, Occupation and Health	3
OT 6300	Occupational Therapy Assessments and Interventions III (Pediatric)	5
OT 7200	Occupational Therapy Practice in Aging	3
Credits		11
Third Year		
Spring Semester		
OT 7410	Pediatrics Special Topics	3
OT 7500	Occupational Therapy Synthesis	3
Credits		6
Summer Semester		
OT 7898	Level II Fieldwork A: Medical	8
Credits		8
Fall Semester		
OT 7899	Level II Fieldwork B: Community	8
Credits		8
Total Credits		93

# Physical Therapy (D.P.T.)

Office: 2248 CPHS; 313-577-1432  
Program Director: Kristina Reid  
Director of Clinical Education: Martha Schiller  
<https://cphs.wayne.edu/physical-therapy/>

Physical therapy is a dynamic health profession that develops, coordinates, and utilizes selected knowledge, skills, and techniques in planning, organizing, and directing programs for the care of individuals whose ability to function is impaired or threatened by disease or injury. This therapy includes examination, evaluation, diagnosis, prognosis, intervention, and analysis of outcomes. It provides services to patients/clients who have impairments of body function and structure, activity limitations, participation restrictions, disabilities, or changes in physical function and health status resulting from injury, disease, or other causes. Physical therapists also must be able to collaborate with a variety of professionals, address risk factors to health, be leaders and providers in the areas of prevention and promoting health, wellness and fitness, serve

as educators, consultants, administrators and advocates, utilize critical inquiry skills and direct and supervise the provision of therapy services.

Some examples of diagnoses of individuals who might be seen by a physical therapist include stroke, low back pain, neck pain, ACL knee injury, Parkinson's Disease, spinal cord injury, amputation, heart attack, athletic injury, arthritis, cerebral palsy, rotator cuff (shoulder) injury, total or partial joint replacement, spina bifida, general health and personal training, congestive heart failure, emphysema, cancer, head injury, multiple sclerosis, learning disabilities, speed and agility training, and many more.

The American Physical Therapy Association (APTA) is the organization which represents the physical therapy profession. The mission of the APTA is to further the profession's role in the prevention, diagnosis, and treatment of movement dysfunctions and the enhancement of the physical health and functional abilities of members of the public. Students interested in the physical therapy profession should also visit the APTA (<http://www.apta.org/>) website.

**Accreditation:** The Physical Therapy Program at Wayne State University is accredited by the Commission on Accreditation in Physical Therapy Education (<http://www.captionline.org/Home.aspx>) (CAPTE). Graduates who receive a Doctor of Physical Therapy degree are eligible to take the national physical therapy licensure examination, the Canadian licensure examination, and for active membership in the American Physical Therapy Association.

## General Admission

Admission to this program is contingent upon admission to the Graduate School (p. 21) and completion of the pre-professional course component.

The Doctor of Physical Therapy (D.P.T.) is offered by this department at two levels of admission: entry level D.P.T. and transitional D.P.T. The entry level degree program is for individuals who are not now practicing physical therapists but are interested in becoming physical therapists. The transitional Doctor of Physical Therapy program is for individuals who are already licensed as a physical therapist in the United States or Canada and who wish to expand their knowledge and skills to be better prepared to work as a primary care provider and expert practitioner. These programs lead to the same degree but require different admissions criteria and the completion of different sets of core courses.

## Entry-Level Program

**Admission - Entry Level:** To be considered for professional program admission, all applicants must have a minimum undergraduate grade point average of 3.0 or above and have earned a minimum grade of C (2.0) in each prerequisite course. A baccalaureate degree is not required for admission to the Doctor of Physical Therapy program. The requirements for consideration for admission vary, depending on whether the applicant will have an earned baccalaureate degree prior to enrollment but all applicants must meet requirements for admission to the Graduate School. Starting in 2015, the Graduate Record Examination will be required.

Applicants who will not have a baccalaureate degree upon enrollment in the physical therapy program must successfully complete

1. a minimum of ninety credits,
2. all University General Education Requirements,
3. all physical therapy science prerequisite courses,
4. all physical therapy non-science prerequisite courses, and
5. an upper-level concentration to be considered for admission.

Applicants who will have completed a baccalaureate degree prior to enrollment in the physical therapy program must complete all physical therapy science prerequisite courses and all physical therapy non-science prerequisite courses. Additional information on program-specific prerequisites can be found in the Physical Therapy section of the Undergraduate Bulletin.

Admission to the entry-level Doctor of Physical Therapy (D.P.T.) professional program occurs on an annual basis with Physical Therapy courses beginning in the Fall Term. There are a limited number of spaces in the Physical Therapy program and admission is competitive. Completion of the admission requirements does not guarantee admission.

## Degree Requirements - Entry-Level Program

The Doctor of Physical Therapy degree requires satisfactory completion of 121-123 credits, including all courses in the core curriculum listed below.

Note: Students may graduate with fewer than 123 credits with approval from Program Director

Consistent with Graduate School policy, the grading system for graduate students is 'intended to reflect a higher standard of critical and creative scholarship than those applied at the undergraduate level.' Continuing students are required to earn a minimum of a 3.00 g.p.a. to satisfy degree requirements. A graduate student who receives a 'C' grade in any course is expected to complete remedial work to demonstrate competency in the course requirements that may include repetition of the course the next time it is offered. Receiving more than two 'C' grades, or five grades below a B (3.0), in the curriculum is considered unsatisfactory progress and achievement, and will result in dismissal from the professional program. Students may also be dismissed from the program for unsatisfactory clinical performance or for unsatisfactory professional behavior.

All course work must be completed in accordance with the academic procedures of the Graduate School (p. 24) governing graduate scholarship and degrees and the College of Pharmacy and Health Sciences (p. 352). In addition, the criteria for academic performance given in the Physical Therapy Student Handbook should be followed. The Physical Therapy Student Handbook, provided by this program, also contains policy statements that may pertain to admission, candidacy, and degree requirements which students should consult.

The core curriculum is subject to change without prior notice in response to the changing health care environment and accreditation standards.

### Core Curriculum (Entry-Level Program)

Code	Title	Credits
PT 5010	Clinical Applications I	1
PT 5020	Foundations of Physical Therapy	2
PT 5030	Basic Patient Care in Physical Therapy	2
PT 5070	Clinical Applications II	2
PT 5100	Therapeutic Exercise I	3
PT 5120	Human Growth and Development	2
PT 5300	Surface Anatomy	2
PT 5320	Basic Examination and Evaluation Procedures	3
PT 5400	Neurosciences for Health Care Professionals	3
PT 5410	Clinical Medicine I	3
PT 5430	Clinical Medicine II	1
PT 5500	Kinesiology and Biomechanics	3
PT 5505	Clinical Applications of Human Anatomy	3



PT 5510	Clinical Applications of Human Anatomy: Laboratory	1
PT 5650	Pathophysiology for Health Sciences	3
PT 5800	Clinical Education I	3
PT 5660	Pathokinesiology	2
PT 5670	Special Test in Physical Therapy	1
PT 5820	Clinical Education II	3
PT 6100	Therapeutic Exercise II	3
PT 6300	Research I: Critical Thinking	2
PT 6310	Advanced Exercise Physiology	2
PT 6410	Special Topics in Physical Therapy I	2
PT 6420	Special Topics in Physical Therapy II	2
PT 6430	Special Topics in Physical Therapy III	2
PT 6500	Pharmacology	2
PT 6700	Motor Learning and Motor Control	2
PT 7000	Therapeutic Modalities	3
PT 7100	Management of Patients with Orthopedic Conditions I	4
PT 7120	Management of Patients with Orthopedic Conditions II	3
PT 7200	Management of Patients with Neurological Disorders I	3
PT 7220	Management of Patients with Neurological Disorders II	3
PT 7300	Orthotics and Prosthetics	3
PT 7320	Rehabilitation Procedures	3
PT 7400	Cardiopulmonary Rehabilitation	4
PT 7600	Physical Therapy for Medical and Surgical Conditions	3
PT 7700	Research II: Design & Methodology	2
PT 7720	Research III: Data Analysis and Interpretation	2
PT 7740	Research IV: Research Practicum	1
PT 8000	Therapeutic Management of Pediatric Populations	3
PT 8110	Geriatrics	2
PT 8200	Management in Physical Therapy Practice	2
PT 8300	Differential Diagnosis for Health Sciences	3
PT 8400	Diagnostic Procedures for Health Sciences	2
PT 8500	Clinical Decision Making	3
PT 8600	Health Promotion and Wellness	2
PT 8800	Clinical Education III	4
PT 8820	Clinical Education IV	8
<b>Total Credits</b>		<b>123</b>

## Health and Liability Insurance

Clinical Education is provided throughout the professional program along with didactic courses. The final twenty-eight weeks of the program are spent in two assignments in selected clinical facilities throughout the metropolitan Detroit area, Michigan and other parts of the country. Patient care involves inherent risk of exposure to potential diseases, particularly blood borne pathogens, and the risk of possible mishaps in patient care. Therefore, all students are required to maintain health insurance coverage and this must be in effect prior to and during the professional program. Liability insurance is rolled into course fees associated with clinical education. The student is responsible for the cost of health insurance and all other costs (such as travel, meals, living expenses) associated with the clinical education portion of the program.

## Physician Assistant Studies (M.S.)

Office: 2590 CPHS; 313-577-1368

Program Director: Mary Jo Pilat, PhD, MS, PA-C, CCR

<http://www.pa.cphs.wayne.edu/>

A physician assistant (PA) is a health care provider who is nationally certified and is found in every medical specialty and setting. PAs manage the full scope of patient care, often handling patients with complex medical problems. PAs conduct physical exams, assist in surgery, diagnose and treat illness, order and interpret tests, counsel on preventative health care, and prescribe medications. The role may also include educational, research, and administrative activities as well as clinical responsibilities. PAs are critical members of the health care team, collaborating with physicians and all team members to improve patient outcomes.

## Admission Requirements

Admission to this program is conducted through applications submitted to the Centralized Application Service for PAs (CASPA) (<http://www.caspaonline.org>) and is contingent upon admission to the Graduate School (p. 21). Applicants must have a bachelor's degree from an accredited college or university. In addition, students must:

1. have a minimum cumulative and prerequisite undergraduate grade point average of 3.0;
2. complete the general test of the Graduate Record Examination by July 31;
3. submit three letters of recommendation, one from a work supervisor and preferably one from a physician assistant;
4. submit an essay expressing your motivation to become a PA;
5. have a minimum of 500 hours (within last two years) of direct, "hands-on" patient care experience in a health-service environment by September 1 of application deadline;
6. non-native English speakers must complete the TOEFL;
7. complete the CASPer Test (<https://takecasper.com/>).

Please consult the WSU PAS program (<http://www.pa.cphs.wayne.edu>) for a complete list of admission criteria.

## Admission Interview

Admission to the program is competitive. All those admitted to the WSU PAS program have satisfied all requirements listed above and have successfully completed a personal interview. Interviews are offered to the most competitive candidates however not all candidates that meet the minimum requirements are offered an interview.

## Program Deadlines

All prerequisite coursework must be completed by September 1 of the year prior to the start of the program. Applicants must complete the CASPer evaluation and submit two separate applications:

1. one to the WSU Graduate School and
2. one through the CASPA website.

## General Information Meetings

General Information Meetings are held at the Eugene Applebaum College of Pharmacy and Health Sciences the first Tuesday of each month at 6:00 p.m. at the College. Visit the program website (<http://cphs.wayne.edu/meetings.php>) for details.



## Prerequisite Study

In addition, the following coursework must have been successfully completed with a grade of "B" (3.0) or higher in order to be considered for admission:

Human Anatomy<sup>1,2</sup>: one course

Human Physiology<sup>1,2</sup>: one course

Upper Level Science Course<sup>1</sup>: one course (must be human based & at 3000 level or above)

Microbiology<sup>1</sup>: with laboratory, one course

Nutrition: one course, general human/clinical nutrition

Chemistry<sup>1</sup>: two courses required (one course must be inorganic/general and second course must be organic chemistry or biochemistry)

Developmental psychology: one course

Basic statistics: one course

English composition: two courses

Medical terminology, one course

<sup>1</sup> Must be completed within the six years prior to the date of application to this degree program:

<sup>2</sup> Combined Human Anatomy and Physiology Courses will only count for the Human Anatomy prerequisite requirement.

The Master of Science in Physician Assistant Studies is offered under a Plan C option, requiring successful completion of seventy-five credits in course work over two years or six semesters. All course work must be completed in accordance with the academic procedures of the Graduate School (p. 24) governing graduate scholarship and degrees and the College of Pharmacy and Health Sciences (p. 352), respectively, and in accordance with the Physician Assistant Studies Program Student Policy and Information Manual. A grade of 'C' in any graduate course is unacceptable.

### First Year

Spring/Summer Semester		Credits
PAS 7000	Anatomy for Physician Assistants I	2
PAS 7001	Anatomy for Physician Assistants II	1
PAS 7010	Clinical Medicine I	3
PAS 7040	Patient Evaluation I	2
PAS 7070	Health Care Issues I	1
PAS 7500	Pathophysiology I	1
<b>Credits</b>		<b>10</b>

### Fall Semester

PAS 7020	Clinical Medicine II	3
PAS 7050	Patient Evaluation II	2
PAS 7080	Health Care Issues II	1
PAS 7100	Pharmacology I	2
PAS 7510	Pathophysiology II	1
<b>Credits</b>		<b>9</b>

### Winter Semester

PAS 7030	Clinical Medicine III	4
PAS 7060	Patient Evaluation III	3
PAS 7090	Health Care Issues III	1
PAS 7110	Pharmacology II	2
PAS 7520	Pathophysiology III	1
<b>Credits</b>		<b>11</b>

### Second Year

#### Spring Semester

PAS 8100	Clinical Practicum I	7
<b>Credits</b>		<b>7</b>

#### Summer Semester

PAS 8200	Clinical Practicum II	7
PAS 8250	Physician Assistant Studies Senior Seminar I	1
<b>Credits</b>		<b>8</b>

### Fall Semester

PAS 8300	Clinical Practicum III	14
PAS 8350	Physician Assistant Studies Senior Seminar II	1
<b>Credits</b>		<b>15</b>

### Winter Semester

PAS 8400	Clinical Practicum IV	14
PAS 8450	Physician Assistant Studies Senior Seminar III	1
<b>Credits</b>		<b>15</b>
<b>Total Credits</b>		<b>75</b>

Note: The sequencing of clinical year two rotation is illustrative of a typical student schedule but may vary in individual cases.

# Pharmaceutical Sciences

Office: 3610 CPHS; 313-577-1047

Chairperson: Steven Firestone

<https://cphs.wayne.edu/sciences/index.php> (<https://cphs.wayne.edu/sciences/>)

The pharmaceutical sciences encompass the traditional disciplines of medicinal or pharmaceutical chemistry, pharmaceuticals and pharmacology/toxicology. Medicinal chemistry is primarily devoted to the discovery and development of new compounds which may be of value in the diagnosis and treatment of disease. Included are applications of organic chemistry, natural product chemistry, biochemistry, pharmacology and the relationships among chemical structure, physical properties and biological activity. Pharmaceuticals is concerned with the conception, design, production, characterization, and evaluation of drug delivery systems in vitro and in vivo. Pharmaceuticals includes physical, chemical, biological, microbiological and engineering studies related to the design of drug delivery systems. Pharmacology/toxicology deals with the principles and mechanisms of drug action on biological systems and the toxicological aspects of drugs and other substances.

Applicants with a strong background in the behavioral, biological, pharmacy and/or the physical sciences are excellent candidates for graduate work in this department. Study within this department is heavy focused on an interdisciplinary approach and the curriculum involves a single major with specializations rather than separate majors. This leads to greater flexibility in designing individualized programs geared to the applicant's preparation and interests.

- Pharmacy (Pharm.D.) (p. 368)
- Pharmaceutical Sciences (M.S.) (p. 363)
- Pharmaceutical Sciences (Ph.D.) (p. 365)
- Pharmaceutical Sciences and Urban Sustainability (Ph.D. Dual-Title) (p. 366)

## Pharmaceutical Sciences (M.S.)

**Admission:** Admission to this program is contingent upon admission to the Graduate School (p. 21). For the master's degree program, with a major in pharmaceutical sciences, the following criteria must also be satisfied:

The General portion of the Graduate Record Examination is required of all applicants. There are no minimum GRE scores required for admissions; however, applicants scoring below 150 on the quantitative portion of the exam are generally not admitted.

Applicants whose native language is other than English must demonstrate proficiency in English (p. 21) prior to beginning the program.

In addition to the regular University application, the applicant must also submit the following:

1. A general statement (300-400 words, typewritten) of reasons for selecting the program, including a resume, career objectives, possible research interests, and a list of faculty members that the applicant is interested in working with for their thesis.
2. Three letters of recommendation.

If an applicant's undergraduate preparation is considered deficient for advanced work in the pharmaceutical sciences, additional work may be required at the undergraduate level. All prerequisite credits must be earned prior to or concurrent with the first graduate credits.

Graduate program policy and procedures (<https://cphs.wayne.edu/sciences/pdf/psc-policies-procedures.pdf>) and details about M.S. plans of work (<https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fcphs.wayne.edu%2Fsciences%2Fplan-of-work%2Fms.xlsx&wdOrigin=BROWSELINK>) are available via the department website.

The Master of Science with a major in Pharmaceutical Sciences is offered only as a Plan A master's program requiring thirty credits, including an eight-credit thesis.

Courses required will vary with the student's previous preparation and the area of specialization. These courses will be determined by the student's graduate advisor, with review and approval by the College Graduate Officer as formalized by the Plan of Work. In addition to individualized courses, all Master of Science students are required to complete four core interdisciplinary courses:

Code	Title	Credits
PSC 6800	Introduction to Research	2
PSC 7010	Advanced Drug Action and Safety I	3
PSC 7020	Advanced Drug Discovery I	3
PSC 7040	Advanced Drug Formulation and Delivery I	3

**Selection of Advisor:** The Graduate Director will act as a temporary advisor to all students until a permanent one is chosen. For M.S. and Ph.D. students, laboratory rotations are required before the student can be assigned to a laboratory. All students will register during their first semester for PSC 78X0, Research Techniques, under the direction of the Graduate Director. This will serve as the first semester laboratory rotation. Students will be required to rotate in three different laboratories. Each rotation lasts approximately 5 weeks and rotation openings are on a first-come-first-serve basis. At the end of each rotation, the student will be evaluated by the individual rotation advisor and the overall grade for the course will be derived from these evaluations. Students who receive a grade lower than 'B' will be placed on probation. At the end of the semester, both students and Faculty members are asked to rank their choices. The Graduate Director makes lab assignments based upon these rankings. It should be noted that students are not guaranteed to be placed into the laboratory of the first choice. If a student does not find a suitable advisor after the first 3 rotations, a student will be given the opportunity to identify up to 3 additional rotations during the next semester. However, if no additional rotations (after the first 3 rotations) can be secured from faculty members in the department, the student will be dismissed from the program immediately.

**Seminar Presentation:** Students joining the program in fall or winter semester will register for PSC 7860 in the Spring/Summer semester of their first year and provide a seminar of 20 minutes in length describing their research experiences during their first year. Students joining the program in the Spring/Summer semester will register for PSC 7860 the following year.

All students will register for PSC 7870 in the Fall semester of the second year and will present a 45-minute seminar on a topic not directly related to the student's thesis/dissertation work. The topic will be selected by the student in concert with his/her research advisor and must be approved by that semester's seminar coordinator not less than two weeks prior to the scheduled seminar. Furthermore, the student must make available to the Department a two-page abstract of the seminar. References must be included and do not count towards the two-page limit. The abstract must be approved by the seminar coordinator, who will deliver it to the Department faculty, students, and staff by e-mail not less than one week prior to the seminar. Failure to comply with this requirement shall result in a lowering of the student's seminar grade by one full mark.

In semesters when they are not scheduled to give a formal seminar, all students in the Graduate Program are required to register for PSC 7850 (Pharmaceutical Sciences Colloquium) in each semester that they are in the program. Grades for PSC 7850 will be based upon attendance to the Departmental Seminars.

The progress of every student in the program will be reviewed by the departmental Graduate Program Committee. Each student is evaluated in terms of performance in course work, research progress, fulfillment of University requirements for filing a Plan of Work, and overall professional development. Students will use the IDP/Annual review form available on the Graduate School website. The forms are filled out by Oct. 1 of each year. The evaluation includes a written assessment by the faculty advisor of the student's strengths and weaknesses, as well as an indication of how any deficiencies will be addressed. All course work must be completed in accordance with the academic procedures of the Graduate School and the College governing graduate scholarship and degrees.

A student will be placed on probation for any of the following reasons:

1. Qualified admission status at the time of matriculation;
2. Receipt of a grade lower than 'B' in any Departmental course;
3. Receipt of a score of above 3 (i.e., Needs improvement or Needs significant improvement) on "Overall Rating of student progression towards degree" on the Committee Evaluation Form;
4. Inappropriate, unprofessional and unsafe conduct as determined by the GPC;
5. Failure to hold the 1<sup>st</sup> thesis/dissertation committee by the end of the 3<sup>rd</sup> semester (including spring/summer term) or failure to hold a committee meeting within one year of the previous meeting;
6. Failure to submit the Plan of Work to the Graduate School by the deadline described below.

The student will be informed in writing, at the time of being placed on probation, of the requirements for removal from probationary status. The decision to place a student on probation rests with the GPC. The GPC may request repeating a course in which a letter grade of less than B is obtained. The Department policy is to limit to two the number of courses that graduate students may repeat during their graduate career in the Department of Pharmaceutical Sciences. Each course may be repeated once. Students may repeat only courses in which they received a grade of B- or below. The original grade for the course will remain on the student's transcript, but only the second iteration of the grade will be used in calculating the student's Grade Point Average. Students will not receive University financial aid for repetition of courses.

A student may be dismissed from the program for the following reasons:

1. Failure to comply with requirements set by the Graduate Program Committee;
2. Receipt of two or more grades below 'B' in any single semester;
3. Unauthorized leave of absence;
4. Inability to find a research advisor;
5. Receipt of a grade less than B while on probation;
6. Failure to receive a grade of B or greater for a repeated Departmental course;
7. Failure to pass the Capstone exam on the second attempt;
8. Failure to graduate with a Ph.D. degree within 7 years after joining or transferring into our Ph.D. graduate program or failure to graduate with a M.S. degree within 4 years after joining or transferring into our M.S. graduate program;
9. Failure to abide by the University Student Code of Conduct (<https://doso.wayne.edu/pdf/student-code-of-conduct.pdf>);

10. Inappropriate, unprofessional and unsafe conduct as determined by the GPC;

11. Failed to pass the pre-defense on the third attempt.

The GPC must vote on dismissal of any student from the program and a simple majority vote is required for dismissal. Notice of dismissal shall be made by written communication from the Chairperson of the GPC. The students will be responsible for the tuition and fees for the courses from which they withdraw.

A student may appeal the GPC's actions by providing a written request for consideration to the Graduate Director. This request should document extenuating circumstances which the student feels should be considered by the Committee in its deliberations. The written appeal must be received by the Graduate Director within ten (10) calendar days after initial notification of probationary/exclusion status. The Graduate Director will provide all relevant data to the Chair of the Department. Appeals will be considered by the Chair of the Department whom may seek consultation with an ad hoc committee of the Faculty. A student may appeal the decision of the Chair to the Associate Dean of Pharmacy and then the Dean of the College. The decision of the Dean is final. The student will maintain his or her student status and financial support during the appeals process.

**Leave of Absence:** A leave of absence is defined as an absence from the Graduate Program for a duration of any length up to and including one (1) semester or longer. Leaves of absence of students are subject to WSU policies for the Non-Represented employees, including the provisions of the Family Medical Leave Act. A leave of absence shall only be permitted for extenuating personal or medical reasons. Students granted a leave of absence from the program may be required to do remedial work, depending upon the length of time the student is away from the program. For maternity leaves of absence, a student may request a leave of a maximum of 6 weeks and the leave must take place within the first 6-weeks of the child's birth. A leave of absence for maternity leave must be requested at least 4 weeks before the start of the leave. Approval of the advisor and Graduate Director are required.

Students requesting a leave of absence longer than two (2) weeks from the Graduate Program must submit a written request (email is fine), approved by the student's advisor, to the Graduate Director for approval. Requests for medical leaves of absence must be accompanied by a signed affidavit from the student's physician. This shall contain an indication of the degree of impairment, date of initiation and anticipated duration. All requests for leaves of absence less than 15 days will need to be approved by the advisor. Requests for extension of an authorized leave of absence shall be made following the same procedures as the initial request. Unauthorized/unexcused absences may result in dismissal from the program.

**Withdraw/Resign from the Graduate Program:** Students have the right to withdraw/resign from the graduate program at any time by emailing a signed resignation letter to the Graduate Director and withdrawing from all the courses they are enrolled. However, students will be responsible for the tuition and fees for the courses from which they withdraw.

**Required Time on Research Activities:** Both the M.S. and Doctoral Degrees are research-based degrees that require students to conduct a research project under the director of an advisor. All students are expected to spend significant time in the laboratory. For Doctoral Degree students, it is required that students spend at least 37.5 hours per week (including total hours spent on weekdays, evenings and weekends) on research activities in the lab or outside the laboratory (e.g., at home). Research activities include any activities related to the student's research that are instructed and approved by the advisor or have been assigned

by the faculty during rotation. The M.S. program is considered a full-time degree program and thus there is the expectation that students will spend considerable time during the semester working on their thesis work. M.S. students who are not supported by the Department or advisor are required to spend at least 20 hours per week on research activities. M.S. students that are supported by funds are expected to follow the nature of the funding provided to them. Both degree programs hold classes and research in all semesters (Fall, Winter and Spring/Summer). Both Ph.D. and M.S. students may have to work during the evening, weekends and/or holidays as dictated by the nature of the research projects.

## Pharmaceutical Sciences (Ph.D.)

**Admission:** In addition to the requirements of the Graduate School (p. 21), the applicant should present a bachelor's or master's degree with a major in the behavioral, biological, pharmaceutical or physical sciences.

The General portion of the Graduate Record Examination is required of all applicants. There are no minimum GRE scores required for admissions; however, applicants scoring below 150 on the quantitative portion of the exam are generally not admitted.

Applicants whose native language is other than English must demonstrate proficiency in English (p. 21) prior to beginning the program.

In addition to the regular University application, the applicant must also submit the following.

1. A general statement (300-400 words, typewritten) of reasons for selecting the program, including a resume, career objectives, possible research interests and a list of faculty members that the applicant is interested in working with for their dissertation.
2. Three letters of recommendation.

Graduate program policy and procedures and details about the Ph.D. (<https://view.officeapps.live.com/op/view.aspx?src=https%3A%2F%2Fcps.wayne.edu%2Fsciences%2Fplan-of-work%2Fphd.xlsx&wdOrigin=BROWSELINK>) plan of work are available via the department website.

Candidates for the doctoral degree must complete ninety credits beyond the baccalaureate degree, in compliance with the academic procedures of the Graduate School's requirements for doctoral degrees (p. ). All Ph.D. students are required to complete four core interdisciplinary courses:

Code	Title	Credits
PSC 6800	Introduction to Research	2
PSC 7010	Advanced Drug Action and Safety I	3
PSC 7020	Advanced Drug Discovery I	3
PSC 7040	Advanced Drug Formulation and Delivery I	3

The thirty-credit dissertation registration requirement is fulfilled by registering for the courses PSC 9991, PSC 9992, PSC 9993, and PSC 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively), in consecutive academic year semesters.

**Selection of Advisor:** The Graduate Director will act as a temporary advisor to all students until a permanent one is chosen. For M.S. and Ph.D. students, laboratory rotations are required before the student can be assigned to a laboratory. All students will register during their first semester for PSC 78X0, Research Techniques, under the direction of the Graduate Director. This will serve as the first semester laboratory rotation. Students will be required to rotate in three different laboratories. Each rotation lasts approximately 5 weeks and rotation openings are on

a first-come-first-serve basis. At the end of each rotation, the student will be evaluated by the individual rotation advisor and the overall grade for the course will be derived from these evaluations. Students who receive a grade lower than 'B' will be placed on probation. At the end of the semester, both students and Faculty members are asked to rank their choices. The Graduate Director makes lab assignments based upon these rankings. It should be noted that students are not guaranteed to be placed into the laboratory of the first choice. If a student does not find a suitable advisor after the first 3 rotations, a student will be given the opportunity to identify up to 3 additional rotations during the next semester. However, if no additional rotations (after the first 3 rotations) can be secured from faculty members in the department, the student will be dismissed from the program immediately.

**Seminar Presentation:** Students joining the program in fall or winter semester will register for PSC 7860 in the Spring/Summer semester of their first year and provide a seminar of 20 minutes in length describing their research experiences during their first year. Students joining the program in the Spring/Summer semester will register for PSC 7860 the following year.

All students will register for PSC 7870 in the Fall semester of the second year and will present a 45-minute seminar on a topic not directly related to the student's thesis/dissertation work. The topic will be selected by the student in concert with his/her research advisor and must be approved by that semester's seminar coordinator not less than two weeks prior to the scheduled seminar. Furthermore, the student must make available to the Department a two-page abstract of the seminar. References must be included and do not count towards the two-page limit. The abstract must be approved by the seminar coordinator, who will deliver it to the Department faculty, students, and staff by e-mail not less than one week prior to the seminar. Failure to comply with this requirement shall result in a lowering of the student's seminar grade by one full mark.

Doctoral students will register for PSC 7880 in the Winter Semester of the third year and will present a 45-minute seminar on the progress on their research. Furthermore, the student must make available to the Department a two-page summary of the seminar, including pertinent references. The summary must be approved by the semester's seminar coordinator, who will deliver it to the Department faculty, students, and staff by e-mail not less than one week prior to the seminar. Failure to comply with this requirement shall result in a lowering of the student's seminar grade by one full mark.

In semesters when they are not scheduled to give a formal seminar, all students in the Graduate Program are required to register for PSC 7850 (Pharmaceutical Sciences Colloquium) in each semester that they are in the program. Grades for PSC 7850 will be based upon attendance to the Departmental Seminars.

**Academic Progress:** The progress of every student in the program will be reviewed by the departmental Graduate Program Committee. Each student is evaluated in terms of performance in course work, research progress, fulfillment of University requirements for filing a Plan of Work, and overall professional development. Students will use the IDP/Annual review form available on the Graduate School website. The forms are filled out by Oct. 1 of each year. The evaluation includes a written assessment by the faculty advisor of the student's strengths and weaknesses, as well as an indication of how any deficiencies will be addressed. All course work must be completed in accordance with the academic procedures of the Graduate School and the College governing graduate scholarship and degrees.

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3. Receipt of a score of above 3 (i.e., Needs improvement or Needs significant improvement) on "Overall Rating of student progression towards degree" on the Committee Evaluation Form;
4. Inappropriate, unprofessional and unsafe conduct as determined by the GPC;
5. Failure to hold the 1<sup>st</sup> thesis/dissertation committee by the end of the 3<sup>rd</sup> semester (including spring/summer term) or failure to hold a committee meeting within one year of the previous meeting;
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4. Inability to find a research advisor;
5. Receipt of a grade less than B while on probation;
6. Failure to receive a grade of B or greater for a repeated Departmental course;
7. Failure to pass the Capstone exam on the second attempt;
8. Failure to graduate with a Ph.D. degree within 7 years after joining or transferring into our Ph.D. graduate program or failure to graduate with a M.S. degree within 4 years after joining or transferring into our M.S. graduate program;
9. Failure to abide by the University Student Code of Conduct (<https://doso.wayne.edu/pdf/student-code-of-conduct.pdf>);
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student will maintain his or her student status and financial support during the appeals process.

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## Pharmaceutical Sciences and Urban Sustainability (Ph.D. Dual-Title)

Students admitted to the Ph.D. program in Pharmaceutical Sciences can apply to earn a Ph.D. in Pharmaceutical Sciences with a dual-title in Urban Sustainability. This dual-title degree is designed to prepare researchers and professionals to solve challenging urban problems that require working across disciplines. Students enrolled in this dual-title program take courses that help develop knowledge and skills



relating to urban sustainability. They also undertake activities such as community service, participate in colloquiums, and prepare a funding proposal related to urban sustainability. The dual-title coursework follows competencies outlined by the Transformative Research in Urban Sustainability Training program.

Students must satisfy all requirements for the Ph.D. in Pharmaceutical Sciences. Additional requirements for students enrolled in the Pharmaceutical Sciences and Urban Sustainability dual-title program include:

- 4 required T-RUST core courses out of 5 choices (below)
- 12 credit hours of electives from list of elective courses (at least 7 credits must be from a department other than PSC)
- Participate in community service (2x per year)
- Participate in colloquium
- Prepare proposal to an external funding agency
- Participate in internship with a partner organization
- Develop a 2-credit capstone seminar course in collaboration with other students
- Doctoral dissertation includes 1 chapter that addresses an urban sustainability issue
- Produce a collaborative publication with a doctoral research team under the supervision of the doctoral advisor

## Core Courses

Code	Title	Credits
ANT 5060	Urban Anthropology	3
BIO 7310	Sustainability of Urban Environmental Systems	2
CE 5410	Energy, Emissions, Environment (E3) Design	3
COM 7170	Health and Risk Communication	3
UP 6470	Environmental Planning	3

## Elective Courses

Code	Title	Credits
ANT 5565	Urban Archaeology	
ANT 6570	Archaeological Laboratory Analysis	
BIO 5040	Biometry	
BIO 5180	Field Investigations in Biological Sciences	
BIO 6420	Ecotoxicology and Risk Assessment	
BIO 7011/ PHC 7410	Principles of Toxicology	
BIO 7540	Landscape Ecology	
CE 6270	Sustainability Assessment and Management	
CE/PSC 6910	Pharmaceutical Waste: Environmental Impact and Management	
CE 7280	Applied Environmental Microbiology	
CE 7995	Special Topics in Civil Engineering II <sup>1</sup>	
COM 7160	Crisis Communication	
ECO 6200	Advanced Regulation and Regulated Industries	
ECO 6520	Advanced State and Local Public Finance	
ECO 6800	Advanced Urban and Regional Economics	
ESG 5000	Geological Site Assessment	
ESG 5510	Environmental Fate and Transport of Pollutants	
ESG 5610	Special Topics in Environmental Science and Geology	
FPH 7420	Principles of Environmental Health	
LEX 7231	Environmental Law	
UP 5110	Urban Planning Process	

UP 5430	Cities and Food
UP 6120	Planning Studies and Methods
UP 6260	Land Use Policy and Planning
UP 6700	Geographic Information Systems

<sup>1</sup> In order to satisfy the elective requirement, the topic area must be relevant to the program. Students should consult with their advisor for details.

# Pharmacy Practice

Office: 2152 CPHS; 313-577-0115

Chairperson: Lynette R. Moser

<http://www.cphs.wayne.edu/practice/index.php> (<http://www.cphs.wayne.edu/practice/>)

## The Profession of Pharmacy

Expanded opportunities for pharmacists in patient care roles and therapeutic decision-making have evolved during the past three decades. The traditional role in drug distribution has increasingly expanded to incorporate the concept of comprehensive medication management, a philosophy which gives pharmacists the responsibility for assuring drug therapy that achieves defined outcomes and improves a patient's quality of life. Pharmacists in contemporary practice are trained and expected to work collaboratively with the patient and the patient's other health care providers to assure that drug therapy is safe and effective.

The ability of the pharmacist to play an active role in drug therapy is recognized at both the state and national levels. In recent years, several states have passed legislation that allows pharmacists to initiate or modify drug therapy, through collaboration with a physician or through independent authority. In Michigan, pharmacists may prescribe under the delegated authority of a licensed physician.

## Pharmacist Licensure

The graduate of the four-year Pharm.D. curriculum earns the degree Doctor of Pharmacy and is eligible for the NAPLEX examination to obtain licensure as a pharmacist. Licensure, either by examination or reciprocity, is available in all states and the District of Columbia.

**Internship** is a professional and practical experience under the supervision of a preceptor in a pharmacy approved by the Michigan State Board of Pharmacy, beginning after the student has been licensed by the Board of Pharmacy as an intern. Students must obtain a Michigan Internship License when they begin the professional curriculum of the College.

For additional information regarding internship, examination, or licensure in Michigan, write:

Michigan Department of Licensing and Regulatory Affairs  
Ottawa Building  
611 W. Ottawa  
P.O. Box 30004  
Lansing, MI 48909

Reciprocity information is available from:

National Association of Boards of Pharmacy  
600 Feehanville Dr  
Mount Prospect, IL 60056

- Pharmacy (Pharm.D. (p. 368))

## Pharmacy (Pharm.D.)

The College offers to qualified applicants a professional program leading to the Doctor of Pharmacy (Pharm.D.). The Doctor of Pharmacy program develops a highly qualified expert in pharmacotherapy who is prepared to provide professional leadership in the practice of pharmacy.

## Admission Requirements

Admission to the Doctor of Pharmacy program is competitive and the following criteria are used to evaluate applications from prospective

students. Admissions decisions are made by the Admissions Committee. The committee evaluates all factors, including interview evaluation. Admission granted to students while they are in the pre-professional program will be contingent upon their completion of that program.

1. Completion of prerequisite courses with a minimum grade of "C" or better (2.0 on a 4.0 grade scale). Completion of prerequisites with minimum grades does not guarantee admission.
2. The WSU PharmD program does not require minimum cumulative or prerequisite GPAs; however, these GPAs will still be considered in the overall review for admission.
3. Promise of success in a professional curriculum. Transcripts are evaluated for evidence of continued success in a full-time, science-based curriculum. Patterns of course repetition and excessive withdrawals are considered. It is recommended that applicants repeat not more than two mathematics and science courses in order to improve grades.
4. All applicants must complete the Wayne State University English Proficiency Requirement during the winter semester prior to fall admission. Applicants not enrolled at Wayne State University may arrange for out-state testing to satisfy this requirement at their present educational institution; for information, call the Testing and Evaluation Office: 313-577-3400.
5. A personal interview is required.
6. Nonacademic factors including work experience, community service and leadership abilities will be evaluated.
7. A criminal background check is performed on all accepted applicants and is evaluated prior to an applicant matriculating into the program.

**Admission:** Students are admitted to the Doctor of Pharmacy program for the fall semester only. Enrollment is limited to applicants who have met the general requirements for admission to the University by the stipulated deadline and present evidence of professional admissibility and promise of academic and professional competence in pharmacy.

The applicant must have completed (or be pursuing completion of) pre-professional core courses at the undergraduate level and demonstrated competency in computer literacy, critical thinking, and oral communication.

For complete information on admission, and pre-professional and professional undergraduate program requirements, consult the Wayne State University Undergraduate Bulletin (<http://bulletins.wayne.edu/undergraduate/college-pharmacy-health-sciences/pharmaceutical-sciences/pharmacy-pharmd/>).

**Application:** Deadline for submission of all application materials is November 1 each year. Applications are available through the Pharmacy College Application Service (<http://www.pharmCAS.org>).

## Program Requirements

The Doctor of Pharmacy requires a minimum of 125 credits in the professional program. All course work must be completed in accordance with the academic procedures of the Graduate School (p. 24) governing graduate scholarship and degrees and the College of Pharmacy and Health Sciences (p. 352).

A student must complete all curriculum and program requirements, remove any marks of 'I' or 'Y', and be recommended for the degree. The student must complete the required minimum number of credits, elect courses in the proper sequence in the curriculum shown below, and meet all course prerequisites and corequisites, unless excused from doing so by the Dean.

A graduate of the following four-year professional curriculum earns a Doctor of Pharmacy (Pharm.D.) and is eligible for the NAPLEX exam leading to licensure as a pharmacist. Students should also note that they may apply for a Bachelor of Health Sciences with a concentration in Pharmaceutical Sciences after completion of their first year of the Pharm.D. program. Students are eligible once they have completed a minimum of 120 credits, including all university general education requirements, professional courses in the P1 year, and any electives needed to reach that 120 credit minimum. The B.H.S. degree will allow students the opportunity to enter other fields of advanced study which require a baccalaureate degree, but granting of the B.H.S. degree does not qualify for licensure; application for licensure will occur after completion of the Pharm.D. degree.

## Pharm.D. Professional Curriculum

First Year		Credits
<b>Fall Semester</b>		
PHA 4105	Pathophysiology I	3
PHA 4125	Drug Literature Evaluation and Foundations of Research	3
PSC 4115	Pharmaceutics I	3
PSC 4125	Introduction to Pharmaceutical Sciences: Medicinal Chemistry / Pharmacology / Immunology	3
PPR 4115	Social Administrative Sciences and Professional Development I	3
	<b>Credits</b>	<b>15</b>
<b>Winter Semester</b>		
PHA 4205	Pathophysiology II	2
PHA 4225	Principles of Pharmacotherapy I: Respiratory, Gastroenterology, Allergy, Ophthalmology	4
PHA 4235	Pharmacotherapeutic Problem Solving I: Respiratory, Gastroenterology, Allergy, Ophthalmology	2
PSC 4215	Pharmaceutics II	2
PSC 4225	Autonomic Pharmacology	2
PPR 4245	Patient Care Lab I	1
PPR 4255	Social Administrative Sciences and Professional Development II	2
	<b>Credits</b>	<b>15</b>
<b>Spring Semester</b>		
PPR 4315	Pharmacy Jurisprudence I and Professional Responsibility	2
PPR 4365	Introductory Pharmacy Practice Experience I	1
	<b>Credits</b>	<b>3</b>
<b>Second Year</b>		
<b>Fall Semester</b>		
PHA 5115	Principles of Pharmacotherapy II: Cardiology, Nephrology	5
PHA 5125	Principles of Pharmacotherapy III: Endocrinology, Gynecology, Urology	4
PHA 5135	Pharmacotherapeutic Problem Solving II :Nephrology, Cardiology, Endocrinology, Gynecology, Urology	2
PSC 5115	Pharmacokinetics	2
PPR 5145	Patient Care Lab II	1
PPR 5155	Social Administrative Sciences and Professional Development III: Practice Management	2
PPR 5165	Introductory Pharmacy Practice Experience II	1
	<b>Credits</b>	<b>17</b>
<b>Winter Semester</b>		
PHA 5215	Principles of Pharmacotherapy IV: Infectious Diseases	4
PHA 5225	Principles of Pharmacotherapy V: Neurology, Psychiatry	4
PHA 5235	Pharmacotherapeutic Problem Solving III: Infectious Diseases, Neurology, Psychiatry	2
PPR 5245	Patient Care Lab III	1
PPR 5215	Applied Pharmacokinetics and Pharmacogenomics	2

PPR 5255	Social Administrative Sciences and Professional Development IV	2
PPR 5265	Introductory Pharmacy Practice Experience III	1
Professional Elective Option (Directed Study only)		2
	<b>Credits</b>	<b>18</b>
<b>Spring Semester</b>		
Professional Elective Option (Didactic and/or Directed Study; students may register for 2-4 credits during this semester.) <sup>1</sup>		2
	<b>Credits</b>	<b>2</b>
<b>Third Year</b>		
<b>Fall Semester</b>		
PHA 6125	Principles of Pharmacotherapy VI: Oncology, Advanced Immunology	3
PHA 6135	Pharmacotherapeutic Problem Solving IV: Oncology and Advanced Pharmacotherapeutics	3
PPR 6115	Applied Therapeutics in Self-Care	2
PPR 6145	Patient Care Lab IV	1
PPR 6155	Social Administrative Sciences and Professional Development V	3
PPR 6165 or PPR 6175	Community-Introductory Pharmacy Practice Experience (C-IPPE) <sup>2</sup> or Hospital-Introductory Pharmacy Practice Experience (H-IPPE)	2
Professional Electives (Didactic and/or Directed Study) <sup>1</sup>		2
	<b>Credits</b>	<b>16</b>
<b>Winter Semester</b>		
First Seven-week Block:		
PHA 6235	Pharmacotherapeutic Problem Solving V: Drug Induced Diseases	2
Second Seven-week Block:		
PPR 6295	Clinical Capstone	2
Courses Taken Throughout Semester:		
PSC 6285	Pharmacy Seminar	1
PPR 6165 or PPR 6175	Community-Introductory Pharmacy Practice Experience (C-IPPE) <sup>2</sup> or Hospital-Introductory Pharmacy Practice Experience (H-IPPE)	2
PPR 6235	Social Administrative Sciences and Professional Development VI	2
PPR 6245	Pharmacy Ethics and Professional Responsibility	2
Professional Electives (2-4 credits, if not previously completed) <sup>1</sup>		
	<b>Credits</b>	<b>11</b>
<b>Fourth Year</b>		
Students are required to complete seven advanced practice rotations during the P-4 year.		
Spring/Summer, Fall, and Winter Semesters		
PPR 7410	Advanced Pharmacy Practice Inpatient/Acute Care	4
PPR 7420	Advanced Pharmacy Practice Ambulatory Care	4
PPR 7430	Advanced Pharmacy Practice Patient Care Core	4
PPR 7550	Advanced Pharmacy Practice Hospital	4
PPR 7560	Advanced Pharmacy Practice Community	4
Elective Adv. Pharm. Pract Patient Care or Non-Patient Care		4
Elective Adv. Pharm. Pract Patient Care or Non-Patient Care		4
	<b>Credits</b>	<b>28</b>
	<b>Total Credits</b>	<b>125</b>

<sup>1</sup> A total of 6 credits of professional electives must be taken between the start of the Second Year Winter Semester and completion of the Third Year Winter Semester; only Directed Study electives may be taken prior to the Spring/Summer of the Second Year. Students in the Research Scholars Track will fulfill the professional elective requirement with 4 credits of PHA 5195 (Research Scholars Elective) in addition to PHA 4395 Research Scholars: Research Development, subject to the provisions outlined in the Research Scholars Concentration.

<sup>2</sup> PPR 6165 and PPR 6175 are offered in both Fall and Winter terms; students will be assigned to one of these courses in the Fall and the other in the Winter.

or Community Clinical. Research is not a mandatory component of the concentration; however, it is encouraged.

## Pharm.D. Practice Experiences

To provide the pharmacy student with education in the application of knowledge he/she has gained in courses in the curriculum, pharmacy practice experiences are scheduled throughout the Pharm.D. program. Pharmacy practice experiences give the student the opportunity to apply his/her pharmaceutical education directly to patients in a variety of pharmacy settings: community, ambulatory, and institutional locations. Practice experiences are required of all students.

During the fourth professional year (P4), required pharmacy practice experiences include General Community Practice, General Hospital Practice, Ambulatory Care, and Inpatient/Acute Care General Medicine. An additional experience involving patient care is also required. Students have two elective experiences which may be in patient care or non-patient care settings, such as pharmaceutical sciences or pharmacy practice research, managed care, pharmacy organizations, institutional or community management, or pharmaceutical management.

**Requirements:** Before students are scheduled to visit practice environments, they must provide health clearance documentation, proof of professional liability insurance, personal medical insurance, and Basic Cardiac Life Support certification; and sign a travel waiver. Students provide their own transportation to practice sites. A criminal background check may also be required by a practice site before a student can visit that site. Additional information on practice experience requirements and when they are required may be obtained from the College. These change regularly. View the most recent requirements (<https://cphs.wayne.edu/pharmd/curriculum-experiential-education.php>).

## Research Scholars Concentration

The Research Scholars concentration is offered to students who desire to complete a focus aimed at the development of research related knowledge and skills. There are a limited number of seats available and interested students must apply and be accepted to take this Concentration. Students are selectively offered a position in the Research Scholars Concentration and complete a longitudinal research project as part of that concentration. This program requires completion of PHA 4395 Research Scholars: Research and Development. In subsequent semesters, 4 credit hours of Research Scholars elective (PHA 5195) must be taken between Winter P2 and Winter P3 year, as agreed upon by the faculty research mentor and Research Scholars Program Director. Students electing to and being accepted into this concentration must also complete 1 additional mandatory research focused Advanced Pharmacy Practice Experience (PPR 7195) for 4 credit hours in the place of an elective Advanced Pharmacy Practice Experience offering.

## Ambulatory Care Concentration

Students within ACC will be required to successfully complete a total of 17 credit hours with a focus in ambulatory care (9 didactic and 8 experiential credit hours). The concentration will begin with an orientation. In the Spring/Summer term following the P2 year, students will participate in Medication Therapy Management (MTM) training. Once all the requirements have been satisfied, students will receive an MTM certificate. Students will also complete 2 ambulatory care electives (2 designated didactic electives OR 1 designated didactic elective + 1 directed study in ambulatory care), 2 mandatory didactic courses, and 2 Advanced Pharmacy Practice Experience (APPE) rotations in ambulatory care. Qualifying rotations must be either designated as Ambulatory Care

# School of Social Work

Dean: Sheryl Kubiak

The mission of the School of Social Work at Wayne State University is to transmit, develop, critically examine, and apply knowledge to advance social work practice and social welfare policy for the promotion of social, cultural and economic justice for poor, vulnerable, and oppressed population groups and for society as a whole. This mission is accomplished in a learning environment designed to prepare ethical and competent social work practitioners, in primarily urban settings, for social work practice, for conducting research with particular relevance to urban populations; and for innovative leadership and service to the urban community and the social work profession. Both faculty and students serve the community by participating in professional organizations, civic and community groups, and human service organizations.

The School of Social Work is an integral part of Wayne State University, an urban university in a culturally diverse, industrialized, metropolitan area. The School demonstrates its commitment to addressing the problems of people living in this environment through its teaching, research, and service activities. Through applied research, work in the classroom and placements in human service organizations that are the sites for practicum education, students learn how to provide effective social services and to influence social policies.

The School prepares professionals to help alleviate the conditions of those affected by poverty, racism, sexism, ageism, homophobia, unemployment, or mental health challenges and physical and/or developmental impairments. Students learn evidence-based methods of intervention with individuals, families, groups, communities, and organizations. Doctoral students learn the advanced research competencies required to engage in applied research for social work practice and social welfare policy. In synchrony with its emphasis on serving people in the Detroit metropolitan area, the School shares with the University a commitment to recruit students of minority ethnic backgrounds.

## Accreditation

The undergraduate program leading to the Bachelor of Social Work and the graduate program leading to the Master of Social Work are accredited by the Council on Social Work Education, the authorized national accrediting body for social work education. There is no accreditation process for doctoral programs in social work. However, the School is a member of the Group for the Advancement of Doctoral Education in Social Work, the professional body that provides guidelines and oversight for doctoral degree programs in this field.

## Programs

The School of Social Work prepares students at the undergraduate and graduate levels for entry level generalist practice or advanced practice in the profession. Its principal programs lead to the Bachelor of Social Work, the Master of Social Work, and the Doctor of Philosophy degrees. The Bachelor of Social Work program prepares students for entry level generalist professional practice. The Master of Social Work degree program prepares graduates for advanced professional practice. This program includes concentrations in interpersonal practice and innovation in community, policy and leadership. The Doctor of Philosophy in Social Work prepares social work educators and scholars whose research on pressing urban problems will advance social work practice and social welfare policy. The Doctor of Philosophy degree program includes rigorous training in qualitative and quantitative research methods, advanced course work in social work as well as completion of a cognate area in another discipline and mastery of specialized social work content areas.

Post-degree courses are available to graduates who have completed bachelor's and/or master's degrees. The School offers Dual Title and Graduate Certificate Programs, as well as special institutes and workshops for individuals employed in the field of social welfare and school social work. Continuing education in social work is also offered through the School's Continuing Education Program.

## School Social Work Approval Program

Students enrolled in the program leading to the Master of Social Work degree may qualify concurrently for Department of Education temporary approval for social work positions in Michigan school districts. Specific information on approval requirements for students and M.S.W. graduates may be obtained from the Office of Admissions and Student Services, School of Social Work.

**Information Meetings:** The School holds informational meetings every two weeks to introduce its undergraduate and graduate programs. Informational meetings for the Ph.D. Program are held monthly during the fall semester of each academic year. Potential applicants are encouraged to attend one of these meetings prior to applying. Meeting schedules for the B.S.W. and M.S.W. programs may be obtained by calling the School's Office of Admissions and Student Services (313-577-4409). Meeting schedules for the Ph.D. Program may be obtained by calling the Ph.D. Program Office (313-577-4419). Meeting schedules for all programs are also posted on our website (<http://www.socialwork.wayne.edu/>).



# Social Work (M.S.W.)

The School offers full-time and planned part-time study programs leading to the Master of Social Work. This program prepares graduates for advanced professional practice in social work. The full-time degree program consists of four semesters of study in which practicum is concurrent with class work. Students spend two full days a week in practicum and two days in classes for two consecutive years. With approval of the graduate officer, students in the second year may elect to have three full days a week in practicum. Required classes in the full-time program may be offered in day, evening, and Saturday sessions. Web-based online courses are also offered.

The planned part-time program permits students to complete degree requirements over a three-year or a four-year period. Part-time study is open only to students who have been formally admitted to the program by the Admissions Director. Details of the several phases of class and practicum involved in this program, as well as specific information on admissions requirements, may be obtained from the Office of Admissions and Student Services, School of Social Work.

## Academic Regulations (M.S.W.)

For complete information regarding the academic rules and regulations of the University, students should consult the Academic Regulations (p. 24) section of this bulletin. The following additions and amendments pertain to the School of Social Work.

Students in the School of Social Work are responsible for informing themselves of all rules, regulations, and requirements, complying with all official policies and procedures, and fulfilling all course and degree requirements in proper sequence with satisfactory scholarship. The student should consult the Academic Services Officer or the M.S.W. Academic Advisor concerning any academic matter. Students should consult the Academic Services Officer or the M.S.W. Academic Advisor when developing a Plan of Work or selecting electives. The primary responsibility for counseling with the Academic Services Officer or Academic Advisor and for seeking information on policies, procedures, degree requirements, and all academic matters rests with the student.

The faculty of the School of Social Work has the responsibility to require a student to withdraw at any time prior to receipt of the degree when, in its judgment, the student fails to do satisfactory work. Such decisions may be based on deficiencies in performance in class or practicum or in personal fitness for the profession. The faculty has adopted a set of criteria and procedures for academic termination. Every effort is made to assist students whose work suffers as a result of conditions beyond their control such as personal illness, serious illness in the immediate family, or similar emergencies. The School's Policies and Procedures related to Academic Performance (Termination, Grade Appeals, and Reinstatement) and Student Professional Performance Standards are available in the Office of the Dean and the Office of Admissions and Student Services.

## Admission Requirements

Eligibility for admission requires a bachelor's degree from an accredited undergraduate program and an earned minimum G.P.A. of 3.0 or above. A G.P.A. of 2.75 to 2.9 may be considered based on program capacity and strength of the application. Admissions applications are reviewed when all required supporting materials have been received by the program. New students admitted into the foundation (core) year of the Master of Social Work program begin in the Fall term of each academic year. Applicants admitted into the advanced standing program begin in the summer semester of the academic year. All applicants are encouraged to submit applications as soon as possible as admissions will close once program capacity has been reached. Applications to the program may be submitted up to one year prior to the start of the beginning term of

the selected program. The MSW#Pre#Candidate Master with Advanced Standing Status Program begins the summer term. All application materials must be submitted by the application deadline of June 1. The MSW#Core/Regular Status Program begins the fall term. Applicants are encouraged to apply and submit all application materials to the program by the priority processing date of October 1st. All application materials must be submitted by the admissions deadline of June 1st.

Applicants to the full-time or part-time program leading to the Master of Social Work must complete the online application (<http://www.gradadmissions.wayne.edu/apply.php>) and submit payment of the application fee. All application documents are submitted online. Official transcripts are to be submitted to the Office of Graduate Admissions, Wayne State University, directly from all previous college(s) or universities where college credits have been earned. A resume, personal interest statement, and two references are included in the online application documents to WSU. Applicants must

1. hold a four year baccalaureate degree from an accredited institution;
2. have completed thirty semester credits in academic work distributed in the social, behavioral, and biological sciences, and in English and the humanities;
3. show evidence of suitability and fitness for the profession and the ability to successfully undertake graduate professional education in social work.

Applications for admission to the School of Social Work for the Master of Social Work degree are given careful review in order to select those students best able to fulfill the requirements for professional social work education. The School reserves the right to make the final determination about all admissions decisions. The School does not grant credit for life experience or previous work experience.

## Admission to the Advanced Standing Program

An applicant for admission to the Master of Social Work program who holds a baccalaureate degree from an undergraduate social work program accredited by the Council on Social Work Education (or accredited by the Canadian Association of Schools of Social Work (CASSW) may be admitted with advanced standing. The School reserves the right to make the final determination about all Advanced Standing Program admissions decisions.

Students admitted with advanced standing status are required to complete three graduate credits toward the M.S.W. degree during the summer term following admission but are strongly encouraged to complete six graduate credits. In order to complete the degree program, a total of thirty-six credits are required in the advanced year of the curriculum as prescribed within the student's selected concentration area. Students must complete SW 7160 or SW 7840 before enrolling in the advanced concentration area curriculum courses.

Students admitted with advanced standing may be permitted to complete the requirements for the Master of Social Work on a part-time basis. Students admitted to such a planned part-time program are required to complete SW 7160 or SW 7840 and encouraged to complete an elective during the summer term immediately following admission. The additional credits may be completed in subsequent semesters. The School does not grant credit for life experience or previous work experience.

## Admission to Non-Degree Study

Students may enroll in certain classes as pre-master's registrants and will be permitted to accumulate a maximum of nine credits in this status. Pre-master's students may not enroll in practicum courses and certain other courses in which specific prerequisites and/or corequisites preclude their registration. If the student is subsequently admitted to a program

leading to the Master of Social Work, credits earned in a pre-master's classification may be applied toward the degree.

Applicants for pre-master's, non-degree study must hold a baccalaureate degree from a college or university of recognized standing and have completed a minimum of thirty semester credits of academic work distributed in the social and biological sciences and in the humanities.

Applicants must complete the online application (<http://www.gradadmissions.wayne.edu/apply.php>) indicating non-degree status in the School of Social Work and payment of application fee.

Students applying for pre-master's study in the School of Social Work who have already been admitted and registered in the Graduate School of Wayne State University should consult the School of Social Work Office of Admissions and Student Services regarding the procedure for a change of college and/or status.

## Transfer of Graduate Credits

Credits for professional social work courses earned at other graduate programs accredited by the Council on Social Work Education may be accepted toward the Master of Social Work degree. Students, however, must meet all of the specific course requirements or equivalencies in the program leading to the Master of Social Work at this school. A maximum of thirty credits may have been completed in another accredited school of social work. Transfer students must be in good standing in the school from which they transfer, must meet all other requirements of this school, earn a minimum of thirty credits at this school, and must be in residence during the final semester prior to graduation.

A maximum of nine graduate credits from the social work curriculum or from curricula closely related to social work earned in an accredited graduate program may be accepted toward the Master of Social Work if, in the judgment of the faculty, the credits are appropriate as elective credits in the social work curriculum.

Transfer credit must be of a 'B' grade or better and certified as graduate level credit on an official transcript. Courses approved for transfer from outside or within the University cannot have been applied as credit toward a prior degree. Extension credits earned at institutions outside the State of Michigan cannot be applied toward a graduate degree.

Transfer credits do not alter the residency policy and time limitations governing School of Social Work degrees. Students may petition for the transfer of graduate credit only after they have been admitted to the M.S.W. degree program.

## Nondiscrimination Policies

The School is bound by and actively endorses University policies of nondiscrimination respecting all persons regardless of race, color, sex, national origin, religion, age, sexual orientation, marital status, or physical or mental disability, and which expressly forbid sexual harassment or discrimination in hiring. The School prohibits discrimination against individuals because of political orientation. Copies of School and University nondiscrimination policies (p. 18) may be obtained in the Office of the Dean.

## Withdrawal from the M.S.W. Program

A student who has been admitted to the Master of Social Work program shall be considered to have withdrawn from the program if the student is not enrolled in a course and/or practicum during any semester of a planned program of study within the framework of the plan which has been approved. In order to withdraw in good standing, either permanently or temporarily, students must formalize their withdrawal with the School of Social Work Office of Admissions and Student Services. Under certain circumstances, with approval from the M.S.W. Coordinator, a student may

be granted a leave of absence from the school for up to one calendar year. Copies of procedures for withdrawal or leaves of absence may be obtained from the SSW Office of Admissions and Student Services.

## Readmission

Students who had been enrolled in a planned program leading to the Master of Social Work, who have withdrawn from the program and who wish to be considered for readmission to complete degree requirements, must follow regular procedures for admission to the School. Generally, students are required to complete two continuous terms of practicum; readmitted students who had previously completed one term of field work will be required to repeat this term, and may be required to enroll concurrently in a course or courses in social work practice methods. Students who have withdrawn and wish to be readmitted may be required to obtain an assessment of their physical or mental health (or both) from a health professional approved and/or selected by the School.

## Degree Application

Application for the degree must be filed no later than the end of the fourth week of classes in the semester in which student expects to complete the requirements for the degree.

## Time Limitation

Students have a six-year time limit to complete requirements for the Master of Social Work.

## Attendance

Students are expected to attend all sessions of courses for which they are registered and to notify the instructor or the instructor's secretary prior to the class session, if possible, when the student may be absent due to illness or similar emergency. Each instructor may specify an attendance policy in the course syllabus, and announce it at the beginning of a course. Consistent or extended absences may jeopardize the student's grade in the course and, possibly, the student's enrollment in the School.

## Practicum Education

All students enrolled in Practicum for Social Workers I and II, are required to carry professional liability insurance (now provided by the school) as a condition of placement. The Practicum Education Manual contains a description of the practicum education program, and the policies and procedures related to the program. Students are responsible for observing the procedures governing field work practice which are detailed in the manual. The Practicum Education Manual is posted on the School's website (<http://www.socialwork.wayne.edu/>) and may be downloaded and saved.

## Practicum Education Health Clearance Policy

The School may require students in practicum to obtain assessments of their physical or mental health from health or mental health professionals approved by the School. The School of Social Work reserves the right to refuse to place or direct a student in practicum if the physical or mental health status of the student indicates such action is warranted in order to safeguard clients, agencies, the student, other students, or the School.

## Program Requirements

The Master of Social Work degree requires a minimum of sixty credits of graduate course work, completed in accordance with the regulations of the Graduate School (p. 24) and the School of Social Work. The program includes a generalist curriculum at the first level, and at the second level, one of two specialized concentrations: Interpersonal Practice or Innovation in Community, Policy and Leadership. The generalist curriculum provides the foundation for the specialized curriculum.

**Online Program:** The MSW degree is also offered as a fully online asynchronous program for full-time students interested in the Interpersonal Concentration. Online curriculum requirements are identical to the traditional MSW main campus program. The MSW online program offers select electives, guaranteeing students enrollment in these online courses. Students in the online program may choose to take different electives available online or on campus, but they are not guaranteed enrollment in those courses. Practicum must be completed at the physical site of the organization to which the student is assigned. Some courses require students to work in teams or conduct research in the community as part of their course requirements.

Students interested in matriculating in the online program must have access to a reliable computer and the Internet to complete all courses successfully. Students must also be able to manage their time and schedules to accommodate the demands of an online program and the field placement. The admissions process is the same as the traditional program except that the program utilizes a cohort model structure. Once enrolled, students may NOT register for any MSW courses offered in a campus classroom except electives. Interested students should visit the SSW website (<https://socialwork.wayne.edu/msw/online/>) for additional information. Curriculum requirements are described below.

## Generalist Curriculum

The generalist curriculum provides a knowledge base for later study of advanced practice in the concentration. The generalist curriculum has content in the six major curricular areas: social work practice, human rights and social justice, human behavior and the social environment, social welfare policy and services, research, and practicum education. The generalist curriculum stresses fundamentals and knowledge of social work practice as they relate to individuals, families, small groups, organizations, and communities. In field education, theory is translated into practice and includes micro, mezzo and macro practice experiences.

Code	Title	Credits
SW 7040	Methods of Social Work Practice	3
SW 7055	Social Work Practice with Groups	3
SW 7065	Generalist Macro Theory and Practice	3
SW 7560	Lifespan Development in the Social Context	3
SW 7720	Social Policy and Advocacy	3
SW 7680	Human Rights, Social Justice, and Diversity in an Urban Context	3
SW 7820	Evidence for Social Work Practice	3
SW 7998	Concentration Field Work for Social Workers I	8
<b>Total Credits</b>		<b>29</b>

Students may waive one or more of these generalist courses by successfully completing a waiver exam. Successful completion of a waiver exam will signify the course is waived without graduate credit thus freeing the student to take other courses to meet degree requirements.

## Declaring Your Concentration

During the generalist year, students declare their interest in a concentration by the end of the Fall semester. Full-time MSW students take their first concentration course – either SW 7160 DSM in Clinical Social Work Practice or SW 7840 Community and Organizational Measures during the Winter semester of their first year. Students admitted with advanced standing status declare their interest in a concentration when they enroll and take their first concentration course during the summer semester of their first year

## Advanced Curriculum - Concentrations

The advanced curriculum builds on the knowledge, values, and skills gained in the generalist curriculum, with the objective of increasing the

student's competence for dealing with greater complexities of social work practice by focusing on areas of social concern. This advanced portion of the M.S.W. program is designed to provide specialized advanced knowledge and practice skills. Students choose one of two concentrations in the advanced year.

Students must meet the requirements for a concentration:

1. satisfactory completion of specific concentration courses in practice methods and policy
2. satisfactory completion of a practicum education placement in the concentration for each of the semesters of the advanced curriculum.

### OPTION I: Interpersonal Practice (IP)

The Interpersonal Practice (IP) concentration is for students who want to focus their practice primarily on individuals, families, and groups. The concentration provides students with broad-based knowledge and skills needed for IP practice in a variety of settings, with opportunities to focus on specific practice areas, theoretical approaches or modes of intervention.

This concentration area offers students grounding in contemporary Interpersonal Practice theories and methods. Students are required to take three foundation Interpersonal Practice courses: DSM in Clinical Social Work Practice (taken during the winter semester of the first year of the MSW program or in the summer semester prior to the second year), Interpersonal Practice Theories and Application, Assessment Skills for Interpersonal Practice, and one intervention course (SW 8345, SW 8355 or SW 8335). Students may then choose from a range of interpersonal practice electives that focus on contemporary techniques and evidence-based interventions in interpersonal practice with children, families, and adults across a wide range of social work settings and practice areas. Students may also choose to take electives from the Innovations in Community Policy, and Leadership specialization or from specific focus areas to deepen their knowledge and skills in specific areas.

Students select field placements in areas of their special interest: among these choices: families at risk, child welfare, substance abuse services, schools, mental health, health care, and gerontology.

Code	Title	Credits
SW 7160	DSM in Clinical Social Work Practice	3
SW 8305	Assessment for Interpersonal Social Work Practice Effective Fall 2022	3
SW 8315	Integrative Theories and Practice Approaches for Interpersonal Social Work Practice Effective Fall 2022	3
SW 8325	Cognitive Behavioral Interventions in Social Work Practice	3
or SW 8335	Client-Centered Interventions in Social Work Practice	
or SW 8345	Psychodynamic Interventions in Social Work Practice	
or SW 8355	Family Interventions in Social Work Practice	
SW 8770	Advanced Policy Analysis	3
or SW 8771	Advanced Policy Analysis in Aging	
or SW 8772	Advanced Policy Analysis in Child and Family Wellbeing	
or SW 8773	Advanced Policy Analysis in Mental Health and Substance Use	
SW 8998	Concentration Field Work for Social Workers II	8-12
Additional Electives		8-13
<b>Total Credits</b>		<b>31-40</b>

### OPTION II: Innovation in Community, Policy and Leadership (I-CPL)

The Innovation in Community, Policy and Leadership (I-CPL) concentration contextualizes student learning into three streams of



practice including developing and sustaining effective communities, developing and sustaining effective policies and developing and sustaining effective organizations through leadership. Students may choose from a range of I-CPL electives or electives from the Interpersonal Practice curriculum or from social work focus areas that will extend and enhance their knowledge and skills in specific areas.

I-CPL students will deepen their understanding of settings where this practice can take place through field placements which relate to urban social planning, community development, policy analysis and advocacy, program development and system coordination.

Code	Title	Credits
SW 7840	Community and Organizational Measures	3
SW 8048	Social Action Research and Evaluation	3
or SW 7999	Master's Research Essay Direction	
or SW 8996	Group Project Research and Direction	
or SW 8999	Master's Thesis Research and Direction	
SW 8065	Advanced Systems Theories and Practices <sup>Effective Fall 2022</sup>	3
or SW 8075	Theories and Practice of Community Building and Development	
or SW 8085	Theories and Practice of Social Policy and Social Action	
SW 8770	Advanced Policy Analysis (or equivalent) <sup>Effective Fall 2022</sup>	3
or SW 8771	Advanced Policy Analysis in Aging	
or SW 8772	Advanced Policy Analysis in Child and Family Wellbeing	
or SW 8773	Advanced Policy Analysis in Mental Health and Substance Use	
SW 8998	Concentration Field Work for Social Workers II	8
Additional Electives		11-16
<b>Total Credits</b>		<b>31-36</b>

## Social Work (Ph.D.)

The School offers full-time and part-time study programs leading to the Doctor of Philosophy (Ph.D.) degree. The doctoral curriculum is intended to provide social work educators with rigorous training in social work theory and research methodology to address contemporary issues associated with social work practice or social welfare policy at all levels. In addition, the doctoral program offers students the option of enrolling in a clinical scholarship concentration. The clinical scholarship concentration is designed to prepare graduates for important careers in clinical social work teaching, scholarship and research, as well as for leadership positions in the greater clinical social work community. A minimum of ninety credits beyond the foundation year of the M.S.W. are required for graduation.

## Admission Requirements

All applicants must meet the admissions standards of the Graduate School (p. 21) and the School of Social Work. The doctoral degree in social work indicates not merely superior knowledge of the discipline but also intellectual initiative and the ability to design and conduct independent research and evaluation of social work practice and/or social welfare policy. Students in pre-candidacy will be evaluated on the basis of these attributes as well as on their grade-point performance. The doctoral program is open only to highly qualified students and all applications for admission to the program must have the approval of the School's Doctoral Steering Committee.

## Doctoral Program Admission Requirements

In addition to the requirements for admission to the Graduate School, it is strongly preferred that candidates have:

1. **Grade Point Average:** A minimum undergraduate and graduate grade point average of 3.5 (on a 4.0 scale)
2. **Prior Degree:** An M.S.W. degree from a CSWE accredited institution. Applicants not having an M.S.W. must complete established requirements for the M.S.W. degree while working towards the Ph.D.
3. **Practice Experience:** Two years post B.S.W. or post M.S.W. social work practice experience
4. **Graduate Record Examination:** GRE scores (verbal, quantitative, and writing) taken within the three years prior to the application should be included in the application. Scores at or above the 50<sup>th</sup> percentile on the verbal, quantitative, and writing components of the GRE are preferred.
5. **English Proficiency:** International students must meet the English Proficiency requirements for Wayne State University. For more information, see <https://wayne.edu/admissions/international/english-proficiency/>.
6. **References:** Applicants should submit three professional references from former supervisors or instructors. At least two of these should be academic references from social work faculty, researchers and/or practitioners holding the Ph.D., J.D., or medical degree who can evaluate the applicant's scholarship and aptitude for research.
7. **Statement of Professional Goals:** Applicants should write a brief statement describing their motivation for doctoral study, career goals, research interests, and interest in research mentorship by specific doctoral program faculty. In order to determine a potential fit of research interests with faculty research programs, applicants are encouraged to view faculty interests on the School's website (<http://www.socialwork.wayne.edu/>).
8. **Academic Scholarship:** Applicants should submit one example of scholarly writing (published or unpublished). The writing example should be first-authored or sole authored work that demonstrates the applicant's ability to critique, synthesize, and make conclusions about social work relevant issues or problems.
9. **Interviews:** Promising candidates for admission will be invited to complete an in-person interview with program faculty for final consideration after the above requirements have been completed.
10. **Applications:** Applicants must submit the School of Social Work Application for Admission to the online Graduate Application, specifying that they are applying for fall admission to the Social Work Ph.D. Program. Students are also required to specify a Ph.D. concentration (policy and practice or clinical scholarship)

**Application Deadline:** Completed application packets must be received by **December 18** prior to the fall term of desired admission.

Admission decisions are based upon all materials submitted and reflect careful consideration of the applicant's professional goals, research interests, and the resources of the School of Social Work.

## Program Requirements

Candidates for the Doctor of Philosophy must complete a minimum of ninety graduate credits, including up to 25 credits transferred from the MSW and thirty earned through the dissertation. The thirty-credit dissertation registration requirement is fulfilled by registering for SW 9991, SW 9992, SW 9993 and SW 9994 (Doctoral Dissertation Research and Direction I, II, III, and IV, respectively) in consecutive academic year semesters upon attaining doctoral candidate status (see below). All course work must be completed in accordance with the

academic procedures of the School of Social Work and the Graduate School governing graduate scholarship and degrees.

**Plan of Work:** Doctoral students structure their course work in terms of an area of specialization within the discipline of social work. Doctoral students, with the assistance of their academic advisor, plan a sequence of studies. A preliminary plan of work, approved by the academic advisor and the Ph.D. Program Director, should be filed by the end of the first month in the program. Petitions for the Transfer of Credits should be attached to the Plan of Work. The Plan of Work should be finalized with the Graduate School before the student earns 40 credits in the doctoral program. Students are responsible for discussing program requirements and course changes with the Director of the Doctoral Program prior to registration for each semester. Students who have not yet attained the MSW degree should also regularly communicate with their MSW advisors to ensure that they are meeting MSW program requirements. Students are required to notify the doctoral director and advisor(s) in writing of any requests for changes in their Plan of Work.

**Annual Review:** Student progress toward degree completion will be monitored annually by the Steering Committee and Director of the Doctoral Program.

**Residency:** The Ph.D. requirement of one year of residence is met by completion of six graduate credits in course work (not dissertation) over two successive semesters.

**Candidacy:** Admission to candidacy for the doctoral degree will usually require two years of full-time graduate study beyond the M.S.W. It is granted upon fulfillment of the following requirements:

1. Completion of School and Graduate School residence and course requirements.
2. Filing of an approved Plan of Work with the Graduate School.
3. Completion of all theory, research methods, and statistics requirements.
4. Completion of the qualifying examination.
5. Selection of the dissertation advisor and committee

**Qualifying Examinations** must be applied for following completion of all of the required social work courses in the doctoral curriculum. The Qualifying Examination requires of students to engage in critical analysis of the state of research, practice, and knowledge in their substantive and cognate areas, and for the reflective presentation of innovations in perspectives, theory, knowledge, and research design, methods and strategies that will advance social work practice and/or policy. By the end of the qualifying examination process students should be well grounded in their substantive areas of research and demonstrate an ethically sound, independent and original perspective regarding inquiry into social work practice. The subject of the Qualifying Examination is selected in consultation with the Doctoral Program Steering Committee.

**Approval of Dissertation Prospectus:** The candidate is required to prepare a Dissertation Prospectus and have it approved by their dissertation committee prior to beginning work on the dissertation. The Prospectus and Committee form must be submitted to and approved by the Graduate School.

**Submission of Dissertation:** The candidate is required to submit a doctoral dissertation on a topic satisfactory to his/her Dissertation Committee, designed to demonstrate proficiency in social work relevant research and scholarship, a capacity for ethical, independent, and creative research, and the ability to perfect and follow through on an appropriate research or evaluation design.

**Dissertation Defense:** Upon completion of the dissertation, the candidate is required to make a public presentation of his/her research. The Dissertation Public Lecture-Defense form must be completed by the candidate and the Dissertation Committee indicating readiness for public presentation of the candidate's research and dissertation. This form must be submitted to the Graduate School at least two weeks prior to the date of the defense. The Dissertation Public Lecture-Defense includes the public lecture and defense where the candidate presents the results of the dissertation research with the audience and the dissertation committee, a private meeting between the dissertation candidate and the committee, and the evaluation by the dissertation committee whereby it is determined whether the candidate has passed the dissertation defense. Upon completion of this process, the Dissertation Public Lecture-Defense form is returned to the Graduate School with the recommendations of the Dissertation Committee.

**Time Limitations:** Students have a seven year time limit to complete all requirements for the Ph.D. The seven-year period begins with the end of the semester during which the student is admitted to doctoral study and commences working toward meeting requirements for the degree.

## Doctoral Program Curriculum

*Social Work Transfer Courses:* (up to twenty-five MSW or post-MSW certificate credits relevant to the student's proposed area of research) approved by the Director of the Doctoral Program.

Code	Title	Credits
<b>Theory</b>		
SW 9160	Knowledge Creation and Theory Development for Social Science Research	3
SW 9170	Theories of Problems and Change across the Micro-Macro Continuum	3
<b>Research and Statistics Courses</b>		
SW 9100	Social Statistics and Data Analysis	3
SW 9300	Applied Regression Analysis and Generalized Linear Models	3
SW 9400	Qualitative Research Methods in Social Work	3
SW 9410	Quantitative Research Methods in Social Work	3
SW 9420	Research Practicum	2
<b>Professional Seminars</b>		
SW 9050	Social Work PhD First Year Seminar	1
SW 9240	Social Work Education	3
SW 9430	Dissertation Seminar	1
SW 9650	Preparing for the Job Search	1
<b>Cognate Courses</b>		
Courses other than Social Work that support the candidate's area of research (9 credits)		9
<b>Total Credits</b>		<b>35</b>

### Elective Coursework

In addition to the required coursework identified above, all students will be required to complete twenty-five credits in elective courses. Students may be eligible to transfer up to twenty-five M.S.W./post-M.S.W. credits of coursework. Courses that may be eligible for transfer include Social Work courses in theory, research, or policy, or electives taken during the Advanced Year of the M.S.W. program and/or post-master's certificate program that are relevant to the student's proposed area of research. Transfer credit must be approved by the Director of the Doctoral Program.



# Social Work and Anthropology (SWAN Ph.D.)

*An admissions moratorium is in effect for this program.*

The Social Work/Anthropology (SWAN) doctoral degree draws on the strengths of both fields in theory, social history, research, policy and practice. The SWAN degree combines the approaches of each discipline to make use of the program's urban location to foster scholarship focusing on global issues of the 21st century, such as the re-invention of post-industrial cities. Students receive a thorough grounding in the theoretical and applied aspects of both Social Work and Anthropology and apply this knowledge to pursue scholarship in such areas of interest as urbanism, globalization, and social/cultural organization. SWAN students follow a curriculum that draws from existing courses in each discipline, including a core course that focuses on the integration of the two fields. Content combining the perspectives of both disciplines is included in the qualifying exam and dissertation research requirements for the degree.

This program prepares scholars for work in several different occupations, including faculty positions in social work and anthropology as well as work in governmental, non-profit, and international settings.

**Academic Scholarship:** All course work completed to satisfy the following degree requirements must be done in accordance with the academic regulations (p. 24) of the Graduate School. All students are required to maintain a 'B' average. A grade of 'B-minus' or below in two courses will be sufficient reason to dismiss a student from the program.

## Admission Requirements

Admission to this program is contingent upon admission to the Graduate School (p. 21). Only a limited number of applicants who have demonstrated superior ability and potential will be accepted in this program.

Prospective students should apply for admission to either the Social Work or Anthropology Ph.D. programs and specify, using a pull-down menu, their request for admission to the SWAN program. They must meet the admissions standards of both the Graduate School and the SWAN program. Students who do not possess an MSW should apply separately to the MSW program and notify the SW doctoral director of their application to both the MSW and SWAN programs. All application and admission materials must be submitted to the Office of Graduate Admissions by January 10 to begin in the following fall semester.

The Plan of Work must be submitted before forty credits have been completed and before the qualifying examination is scheduled.

The Doctor of Philosophy requires ninety credits beyond the baccalaureate degree, thirty of which must be earned as dissertation credits.

A minimum of thirty credits of graduate work must be at the 7000-level or above (excluding dissertation credits). Students must petition the SWAN Steering Committee for course equivalents, substitutes, or any other exceptions to the SWAN requirements.

Once the student has attained candidate status, he/she is required to register for doctoral dissertation credits. Students must register for 9000-level credits (SW 9991, SW 9992, ANT 9993, and ANT 9994) through the Graduate Office and must fulfill 7.5 credits in these courses each semester for four consecutive semesters (excluding spring-summer). All course work completed to satisfy the following degree requirements must be done in accordance with the regulations of the Graduate School

(p. 24), the College of Liberal Arts and Sciences (p. 234), and the School of Social Work (p. 371).

### Coursework:

Student who have not attained the MSW degree are required to obtain this degree prior to graduating with a SWAN PhD. See the MSW Graduate Bulletin entry for details. Students are required to meet with their MSW adviser to develop an MSW plan of work that meets MSW program requirements. With the approval of the SWAN committee and the MSW coordinator, a limited number of SWAN courses may be counted towards MSW requirements.

**The following courses, or their equivalents, must be completed by ALL students:**

Code	Title	Credits
<b>Social Work - Research/Theory</b>		
SW 9100	Social Statistics and Data Analysis	3
SW 9210	Theories for Practice and Research with Individuals	3
SW 9220	Theories for Practice and Research with Groups and Families	3
SW 9230	Theories for Practice and Research with Communities and Organizations	3
SW 9300	Applied Regression Analysis and Generalized Linear Models	3
SW 9410	Quantitative Research Methods in Social Work	3
<b>Anthropology - Research/Theory</b>		
ANT 5060	Urban Anthropology	3
ANT 5140	Biology and Culture	3
ANT 5320	Language and Societies	3
ANT 5700	Applied Anthropology	3
ANT 7010	Proseminar in Anthropology II	3
ANT 7200	Qualitative Modes of Inquiry and Methods	4
ANT 7780	Conceptualizing the Dissertation	3
Two ANT electives in the student's research area		
<b>SWAN - Theory</b>		
SW 9697	Integrative Seminar in Social Work and Anthropology	3

**Qualifying Exams:** The SWAN steering committee will design and administer the SWAN qualifying examinations so that students can demonstrate the breadth, depth and mastery of their theoretical and empirical knowledge related to social work and anthropology theory, research methods and data analysis approaches as well as their substantive domain of knowledge. Students will demonstrate this knowledge through a written examination consisting of four sections:

1. statistics,
2. culture area,
3. research methods, and
4. a substantive paper demonstrating students' application of social science theory and SWAN knowledge to their intended research domain.

The statistics exam will be an in-school, open book exam developed by faculty teaching the required statistics courses. For the take home theory, topic area and substantive paper components, students will, in consultation with their academic advisers, select a three-person examination committee consisting of social work and anthropology faculty. These examination committee members will meet with students

to develop reading lists and questions that students will then address in written take-home exams.

Students who fail one or more sections of the qualifying examination will be expected to retake only those sections that they failed. Students who fail one or more sections of the examination for a second time will be dismissed from the program.

**Foreign Language Requirement:** Students doing SWAN research fieldwork in non-English speaking settings will be expected to have 3 semesters of a foreign language or demonstrate fluency in their field language. These students need to take classes to complete the Anthropology Foreign Language requirement (3 semesters of the same foreign language at the undergraduate level; language credits do not count towards the 90 credits needed for a Ph.D.).

1. a grade of 'C' or better in one and one-half years of work in the language offered to meet the requirement (three semesters or five quarters of coursework at any accredited college or university);
2. satisfactory performance on a standardized (Educational Testing Services) examination; or
3. certification of competence to carry out research in the relevant language by a member of the graduate faculty of Wayne State or an equivalent university. The nature of the tools of research and requirements for satisfactory proficiency will be determined by each student's doctoral committee. Additionally mandated tools of research may include additional statistics, mathematics, computer science and/or a field language.

**Additional Information:** A more detailed discussion of this doctoral program is available on the SWAN (<http://clas.wayne.edu/swan/>) website. Students should also consult the Graduate School's general requirements for doctoral degrees (p. ).

## Social Work and Gerontology (Ph.D. Dual-Title)

The school offers a Dual-Title Degree in Gerontology. Gerontology is a multi-disciplinary field that integrates theory, practice knowledge, and research methodology to benefit older adults. Gerontologists trained at the Ph.D. level have the opportunity to play a key role in developing gerontological practices and in training new generations of practitioners and researchers in the field. The dual-title degree requires coursework in addition to the conventional social work doctoral program. Twelve credits are required for the dual-title that focuses on gerontological content in lieu of a cognate.

Code	Title	Credits
<b>Required coursework</b>		
SW 7995	Introduction to Gerontology	3
SW 9420	Research Practicum	2-3
<b>Additional courses</b>		
NUR 7415	Physical and Psychosocial Issues in Aging	3

Faculty with gerontological expertise from the School of Social Work and other university schools and colleges will serve as mentors for students in the program. Students are also required to incorporate gerontological content into the research practicum and the substantive comprehensive exam. They are also expected to make gerontological content a substantial component of their dissertation and to include a gerontology faculty member on their dissertation committee.

## Social Work and Infant Mental Health (M.S.W. or Ph.D. Dual-Title)

Students in the master's or Ph.D. program in Social Work can apply to earn a Dual-Title Degree in Social Work and Infant Mental Health (IMH). This dual-title degree is designed to prepare Social Workers to support early social and emotional development especially in contexts of risk such as poverty and violence exposure that place young children at risk for relationship disruptions and developmental concerns, and in families where parents or children suffer from developmental disabilities, physical health or mental health concerns. The dual-title program offers many advantages to students whose goal is to work with very young children and their families. Students who earn an IMH dual-title degree have a solid understanding of both research and clinical work with infants and families, are prepared to work in multi-disciplinary teams and to implement evidence-based treatments. MSW Dual Title Students also receive clinical supervision from program faculty during the IMH clinical seminar that is offered in the Fall and Winter terms. As a result of their training and supervision, IMH dual-title students are well-positioned to be competitive in the job market.

### Admission Requirements

Applicants must meet the admissions standards of the Graduate School and the School of Social Work. Interested students can submit an online application (<https://mpsi.wayne.edu/training/infant-health/>) located on the program website. Current students can discuss their interest in the dual-title option with their faculty advisor prior to spring semester of their core year.

## Social Work and Infant Mental Health (M.S.W. Dual-Title)

M.S.W. students whose concentrations are ICP-L and IP can earn a Dual-Title Degree in Social Work and Infant Mental Health. All students are required to complete the following IMH coursework in addition to the M.S.W. (p. 373)

Code	Title	Credits
Required for both ICP-L and IP students:		
PSY 7425	Psychology of Infant Behavior and Development	
SW 7025	Infant Mental Health: Theory to Practice across Early Childhood Settings	
SW 7880	Infant/Family Mental Health Assessment	
SW 8880	Infant Mental Health Practice	
ICP-L students must select the following course:		
SW 8772	Advanced Policy Analysis in Child and Family Wellbeing	
Assignments should focus on policies related to pregnancy, infants and toddlers, or parenting young children.		
IP students must select the following courses:		
SW 8883	Infant Mental Health Seminar I	
SW 8884	Infant Mental Health Seminar II	

All students must complete and earn a 'B' or above in IMH-DT courses. Some of the IMH-DT courses can count toward the MSW degree. ICP-L and IP Advanced Standing students take three credits above what is required for the MSW and IP CORE students take six credits beyond what is required for the MSW .

Master's students must also complete an IMH-related field placement in their second year. Advanced standing students must focus their year of fieldwork on an IMH-related placement.

## Social Work and Infant Mental Health (Ph.D. Dual-Title)

The dual-title degree requires coursework additional to the conventional social work doctoral program (p. 375): twelve credits that focus on the social emotional capacities of young children birth to five years and in the primary relationships that support these capacities. Nine of these twelve credits can count toward the student's cognate. IMH expertise thereby gained should be reflected in a substantive research paper and a dissertation that addresses IMH issues and concepts. Students' studies and scholarly productions will be mentored by Social Work faculty members as well as IMH faculty members from other University schools and colleges.

Doctoral students are required to take the following courses:

Code	Title	Credits
SW 7025	Infant Mental Health: Theory to Practice across Early Childhood Settings	2
PSY 7425	Psychology of Infant Behavior and Development	3
SW 7880	Infant/Family Mental Health Assessment	2
SW 8880	Infant Mental Health Practice	3
Select at least 2 credits of an elective course from the list below:		2
SW 8115	DSM in Clinical Social Work Practice	
SW 8690	Interpersonal Practice in Substance Use	
SW 9000	Directed Study: Doctoral (must be related to IMH)	
SW 9420	Research Practicum (must be IMH research)	
SW 8883 & SW 8884	Infant Mental Health Seminar I and Infant Mental Health Seminar II (4 credits total)	
<b>Total Credits</b>		<b>12</b>

## Social Work and Public Health (M.S.W./M.P.H Joint Degree)

The Wayne State University (WSU) School of Social Work (SSW) and the School of Medicine, Department of Family Medicine and Public Health Sciences (DFMPHS) offer a Joint Master of Social Work (MSW) and Master of Public Health (MPH) degree.

The MSW/MPH joint degree provides students with a deeper understanding of complex determinants of health and the scientific methods necessary to operate in an interprofessional environment. The scientific basis for interprofessional practice requires a firm foundation in human behavior and development, culturally competent communication, organizational and social systems, and the core public health sciences, epidemiology, biostatistics, environmental health. The MSW/MPH degree will strengthen and deepen these skills and equip students to qualify for employment across both disciplines. In order to meet the demand for public health social worker practitioners, the MSW/MPH joint degree program fulfills the need for these professional qualifications.

Admission to this program is contingent upon admission to the Graduate School (p. 21). Admission criteria for the MSW/MPH Joint Degree will meet the requirements of both MSW and MPH Degrees that can be found on the program website (<https://socialwork.wayne.edu/certificate/mswmp/h/>).

Students enrolled in the MSW/MPH Joint Degree Program will fulfill both the MSW program requirements and the MPH degree program requirements with a minimum of 82 credits. A total of 20 credits may be double-counted toward both degrees. The MSW credit hour requirements are dependent upon the concentration chosen and whether the student possesses a bachelor's degree in Social Work (i.e. is an Advanced Standing student). The School of Social Work offers two advanced year concentrations – Interpersonal Practice (IP) and Innovation in Community, Policy, and Leadership (I-CPL). The concentration chosen for the advanced year will determine the number of credits necessary to obtain the joint MSW/MPH degree.

**Graduation** requirements for the MSW/MPH Joint Degree are consistent with the MSW and MPH Degrees and will:

1. Require completion of all required courses for both the MSW and MPH degree, for a minimum total of 82 credit hours within a 6 year period. A total of 20 credits may be double-counted.
2. Require students to maintain a minimum grade point average of 3.0 in the entire program. A minimum of a B grade in all required courses in both the MSW and MPH program will also be required. Students obtaining less than a B grade in any core or required course will be allowed to retake it only once.

## MSW Program Courses Foundation (Core) Curriculum

The foundation (core) curriculum provides a knowledge base for later study of advanced practice in the concentration. The core curriculum has content in the five major curricular areas: social work practice, human behavior and the social environment, social welfare policy and services, research, and field education. The core curriculum stresses fundamentals and knowledge of social work practice as they relate to individuals, families, small groups, organizations, and communities. In field education, theory is translated into practice and includes micro, mezzo and macro practice experiences.

Code	Title	Credits
SW 7040	Methods of Social Work Practice	3
SW 7055	Social Work Practice with Groups	3
SW 7065	Generalist Macro Theory and Practice	3
SW 7560	Lifespan Development in the Social Context	3
SW 7680	Human Rights, Social Justice, and Diversity in an Urban Context	3
SW 7720	Social Policy and Advocacy	3
SW 7820	Evidence for Social Work Practice	3
SW 7998	Concentration Field Work for Social Workers I	8
<b>Total Credits</b>		<b>29</b>

## Advanced MSW Curriculum

The advanced curriculum builds on the knowledge, values, and skills gained in the foundation (core) curriculum, with the objective of increasing the student's competence for dealing with greater complexities of social work practice by focusing on areas of social concern. This advanced portion of the M.S.W. program is designed to provide specific advanced knowledge and practice skills. Students choose one of two concentrations in the advanced year.

Students must meet the requirements for a concentration:

1. satisfactory completion of specific concentration courses in HBSE/ Practice Methods;

2. satisfactory completion of a field education placement in the concentration for each of the semesters of the advanced curriculum.

### OPTION I: Interpersonal Practice (IP):

This concentration offers students a particular theoretical orientation and clinical method from among three theory "tracks": Family Systems, Cognitive-Behavioral, and Psychodynamic. Each track has a corresponding integrative practice methods and human behavior course incorporating content on clinical method and technique, developmental issues, and psychosocial pathology, and each is offered over two consecutive terms. Students select field placements in areas of their special interest: among these choices: families at risk, child welfare, substance abuse services, schools, mental health, health care, and gerontology. Elective credits can be taken to meet the required MPH courses and are able to be double-counted.

Code	Title	Credits
SW 7160	DSM in Clinical Social Work Practice	3
SW 8305	Assessment for Interpersonal Social Work Practice	3
SW 8315	Integrative Theories and Practice Approaches for Interpersonal Social Work Practice	3
SW 8325	Cognitive Behavioral Interventions in Social Work Practice	3
or SW 8335	Client-Centered Interventions in Social Work Practice	
or SW 8345	Psychodynamic Interventions in Social Work Practice	
or SW 8355	Family Interventions in Social Work Practice	
SW 8770	Advanced Policy Analysis	3
or SW 8771	Advanced Policy Analysis in Aging	
or SW 8772	Advanced Policy Analysis in Child and Family Wellbeing	
or SW 8773	Advanced Policy Analysis in Mental Health and Substance Use	
SW 8998	Concentration Field Work for Social Workers II	8-12
Additional Electives		8-13
<b>Total Credits</b>		<b>31-40</b>

### OPTION II: Innovation in Community, Policy and Leadership (I-CPL):

This concentration contextualizes student learning into three streams of practice including developing and sustaining effective communities, developing and sustaining effective policies and developing and sustaining effective organizations through leadership. I-CPL students will deepen their understanding of settings where this practice can take place through field placements which relate to urban social planning, community development, policy analysis and advocacy, program development and system coordination.

A full range of elective credits are taken to meet the required MPH courses and are able to be double-counted.

Code	Title	Credits
SW 7840	Community and Organizational Measures	3
SW 8065	Advanced Systems Theories and Practices	3
or SW 8075	Theories and Practice of Community Building and Development	
or SW 8085	Theories and Practice of Social Policy and Social Action	
Research Courses		3
SW 8770	Advanced Policy Analysis	3
or SW 8771	Advanced Policy Analysis in Aging	
or SW 8772	Advanced Policy Analysis in Child and Family Wellbeing	

or SW 8773	Advanced Policy Analysis in Mental Health and Substance Use	
SW 8998	Concentration Field Work for Social Workers II	8-12
Additional Electives		11-16
<b>Total Credits</b>		<b>31-40</b>

## MPH Program Courses

Code	Title	Credits
<b>Foundation Courses</b>		
FPH 7011	Foundations of Public Health	3
FPH 7012	Social Justice in Public Health	3
FPH 7015	Biostatistics I	3
FPH 7100	Health Care Organization and Administration	3
FPH 7210	Research Methods for Public Health Professionals	3
FPH 7240	Epidemiology	3
FPH 7300	Public Health Policy	3
FPH 8991	Integrated Learning Experience	3
<b>Applied Learning Course</b>		
FPH 7440	Applied Practice Experience	3
<b>MPH-PHP Concentration Courses</b>		
FPH 7230	Health Program Evaluation	3
FPH 7430	Application of Public Health Principles	3
FPH 7510	Leadership and Population Health	2
FPH 7511	Health Promotion Messaging and Advocacy	3
Electives		4
<b>Total Credits</b>		<b>42</b>

## Alcohol and Drug Use Studies (Graduate Certificate)

The Wayne State University Certificate in Alcohol and Drug Use Studies is designed to provide advanced students in education, health and human services with an integrated learning experience that includes biological, psychological, social, cultural, and public health perspectives. The breadth and scope of the program allows students to accomplish their own specific objectives within a multidisciplinary context. The program attracts professionals currently working in social services, mental health, nursing, public health, education, and criminal justice who realize the need for the additional training and credentials. Adding this certificate to existing educational and /or work experience is likely to enhance an individual's career opportunities and options.

## Admission Requirements

Applicants must meet the admissions standards of the Graduate School (p. 21) and the School of Social Work. Eligibility for admission to the Graduate Certificate is limited to those holding a graduate degree from an accredited educational institution or actively pursuing a graduate degree at Wayne State University. There is a three-year time limit in which to meet certificate program requirements. Applications are accepted throughout the year and students may begin the program during any semester.

The coursework consists of a total of 12 credits, including from a selection of introductory (one required), advanced (2 required) and biopsychosocial (1 required) courses in the order specified and two required courses in the order specified.

During the personal interview the student and the advisor for the certificate program will develop the Plan of Work for coursework based



on the student's background, areas of concentration, and career goals. Most students enroll in one or two courses per term. Courses are offered by departments throughout the University and most are offered at least once per year. Up to nine of the twelve credits may be applied to both the certificate and a graduate degree, subject to approval of the relevant academic department and the certificate program coordinator.

If the student has already completed a master's degree, the certificate is awarded when the student has met all the certificate requirements. If the student is earning the certificate concurrently with a master's degree, the certificate is awarded when all the requirements of the certificate and the degree have been met.

Code	Title	Credits
<b>Foundation Courses (Select One)</b>		<b>3</b>
HE 6320	Mental Health and Substance Abuse	
SW 6540	Effects of Drugs and Alcohol on Physical and Social Functioning	
<b>Advanced Courses (Select Two)</b>		<b>6</b>
SW 7150	Health Disparities and Substance Use	
SW 8690	Interpersonal Practice in Substance Use	
SW 7990	Directed Study	
<b>Biopsychosocial Courses (Select One)</b>		<b>3</b>
PSC 5600	Drugs of Abuse	
PHC 6500	Drugs and the Addictive Process	
SW 7140	Biomedical Components of Substance Use and Addiction	
<b>Total Credits</b>		<b>12</b>

## Child Welfare (Graduate Certificate)

*An admissions moratorium is currently in effect for this program.*

The Child Welfare Graduate Certificate is designed to provide current specialized knowledge and best practices for child welfare social work practice in the Detroit metropolitan and state of Michigan practice arenas. Historically, professional social workers have worked with families and children impacted by social injustice and adverse economic situations. The curriculum is designed to provide best and competent practices in situations where families and children encounter child maltreatment, often with compounding issues of poverty, racism, substance abuse, domestic violence and other experiences of trauma.

The Child Welfare Graduate Certificate follows the admissions procedures and policies for the Graduate School (p. 21) and the School of Social Work (p. 372).

The Child Welfare Graduate Certificate requires 12 credits.

Code	Title	Credits
SW 5755	Introduction to Child Welfare	3
SW 6100	Child Welfare and Social Systems: Context for Case Management Practice	3
SW 7700	Trauma-Informed Child Welfare Practice	3
Select one of the following:		3
SW 6535	Youth, Delinquency, and Juvenile Justice	
SW 6540	Effects of Drugs and Alcohol on Physical and Social Functioning	
SW 6575	Violence Prevention and Intervention	
SW 8570	Dynamics and Intervention in Family Violence	

SW 8330	Psychosocial Assessment of Children and Youth
SW 8180	Social Services in the Schools

All coursework must be completed in accordance with the academic procedures of the School of Social Work and the Graduate School (p. 24) governing graduate scholarship and degrees, respectively.

## Disabilities (Graduate Certificate)

The Graduate Certificate in Disabilities prepares students to assume leadership positions as service providers, policy makers, administrators or educators. Students learn to plan creatively and to implement activities that positively affect the lives of persons with disabilities. The program provides a useful educational experience to those committed to the full community inclusion of persons with disabilities. Course work reflects disability issues throughout the life-span and focuses specifically on disability issues in urban settings. The program is a collaborative effort of the Developmental Disabilities Institute (p. 65) and the following academic units:

- the Department of Audiology and Speech-Language Pathology and Department of Psychology, the College of Liberal Arts and Sciences;
- the College of Nursing;
- the Department of Occupational Therapy, Eugene Applebaum College of Pharmacy and Health Services;
- the vocational rehabilitation counseling program in the Theoretical and Behavioral Foundation division, and the special education program in the Teacher Education division, College of Education;
- and the School of Social Work.

Applicants must meet the admissions standards of the Graduate School (p. 21) and the School of Social Work. Eligibility for the certificate is limited to persons possessing a master's degree from an accredited educational institution or persons actively enrolled in a graduate degree program at Wayne State University.

The graduate certificate in Disabilities program includes at least fifteen graduate credits taken in association with, or subsequent to, obtaining a master's degree. Ten credits are earned through completion of the three required courses and a minimum of five credits of electives. At least five credits must differ from the course requirements of the graduate degree being pursued concurrently. A master's degree within the student's discipline must be completed before the certificate is awarded. All course work must be completed in accordance with the academic procedures of the School of Social Work and the Graduate School (p. 24) governing graduate scholarship and degrees.

Code	Title	Credits
<b>Required Certificate Curriculum</b>		
SW 6700	Disabilities in Urban Society: Special Topics	3
SW 6740	Seminar in Disability Studies: Directed Study	3
SW 6750	Practicum in Disabilities: Research Topics	4
Additional electives		5
<b>Total Credits</b>		<b>15</b>

Courses include ten credits in core courses and a minimum of five elective credits. The electives allow students to specialize in a particular area of practice or research, as well as in a particular age range of people with disabilities. At least five credits must differ from the course requirements of the graduate degree being pursued concurrently.



## Gerontology (Graduate Certificate)

The Graduate Certificate Program in Gerontology is designed to prepare graduate students and professional practitioners with graduate degrees to work in a variety of aging-related settings. The field of gerontology is multi-disciplinary, drawing on the best science and practice applications from a number of areas including biology, psychology, sociology, social work, health, and economics. The field of gerontology applies this knowledge to increase the understanding of aging and older adults and to meet the needs of the rapidly growing aging population. The gerontology field focuses on the needs and challenges of community dwelling older adults as well as on elders living in long-term care settings. Adding the gerontology certificate to existing educational and work experiences is likely to enhance an individual's career opportunities and options.

Applicants must meet the admissions standards of the Graduate School (p. 21) and the School of Social Work. Eligibility for admission to the Graduate Certificate is limited to those holding a graduate degree from an accredited educational institution or actively pursuing a graduate degree at Wayne State University. There is a three-year time limit in which to meet certificate program requirements.

Candidates must successfully complete twelve credits of approved courses for the gerontology graduate certificate. Coursework consists of one core course, the Introduction to Gerontology (SW 7995), and nine additional credits chosen from three other categories. During the personal interview the student and the advisor for the certificate program will develop the *Plan of Work* for coursework based on the student's background, areas of concentration, and career goals. Most students enroll in one or two courses per term. Courses are offered by departments throughout the University and most are offered once per year. Up to nine of the twelve credits may be applied to both the certificate and a graduate degree, subject to approval of the relevant academic department and the certificate program coordinator. All coursework must be completed in accordance with the academic procedures of the School of Social Work and the Graduate School (p. 24) governing graduate scholarship and degrees, respectively.

If the student has already completed a master's degree, the certificate is awarded when the student has met all the certificate requirements. If the student is earning the certificate concurrently with a master's degree, the certificate is awarded when all the requirements of the certificate and the degree have been met.

Code	Title	Credits
<b>Required Courses</b>		
All students MUST take SW 7995 (Category I) and choose three additional courses from any of the other three categories.		12
Category I: Seminar in Gerontology (Required)		
SW 7995	Introduction to Gerontology (ONLINE COURSE)	
Category II: The Aging Individual: Psychological Aspects, Human Development and Expression		
SW 7770	Palliative Care and Elder Law	
Category III: Aging in the Social, Political and Economic Context		
SW 5720	Social Services for Older Adults	
SOC 5760	Health and Life Course	
SW 8860	Grief and Loss Issues in Social Work Practice	
Category IV: Aging Health, Biology, and Physiology		
BIO 7750	Biology of Aging	
NUR 7415	Physical and Psychosocial Issues in Aging	
<b>Total Credits</b>		<b>12</b>

## Social Welfare Research and Evaluation (Graduate Certificate)

The certificate program in Social Welfare Research and Evaluation is designed to provide students with advanced research and evaluation skills necessary to assess the outcomes and efficacy of programs, services and interventions offered by social service organizations. In an era of increasing accountability, students will be equipped with the tools to engage in evidence-based practice and evaluation research at the micro, mezzo, and macro levels of practice.

Applicants must meet the admissions standards of the Graduate School (p. 21) and the School of Social Work. Eligibility for this certificate is limited to persons currently pursuing a master's degree in social work (MSW) or who hold a master's degree in social work, counseling or a related human services field. Prospective Research Certificate students are strongly encouraged to attend a social work doctoral program information session (<https://socialwork.wayne.edu/phd/info-meetings/>) prior to completing an application.

Candidates for the certificate must achieve a minimum grade point average of 3.0 and complete eighteen credits as outlined below in designated advanced graduate courses. These courses include offerings in social work theory, advanced statistics and research methods. Further, students will complete an applied research practicum. The certificate must be completed within three years of entering the program. All course work must be completed in accordance with the academic procedures of the School of Social Work and the Graduate School (p. 24) governing graduate scholarship and degrees, respectively.

### Required Courses

Code	Title	Credits
Three credits of theory for practice and research:		
SW 9160	Knowledge Creation and Theory Development for Social Science Research	
Six credits of statistics:		
SW 9100	Social Statistics and Data Analysis	
SW 9300	Applied Regression Analysis and Generalized Linear Models	
Six credits of research methods in social work, with specific content and training related to evidence-based practice research:		
SW 9400	Qualitative Research Methods in Social Work	
SW 9410	Quantitative Research Methods in Social Work	
Three credits of a social work applied research practicum with specific content and training related to evidence-based practice research:		
SW 9420	Research Practicum	
SW 9450	Writing for Publication and Presentation	

Graduation from the certificate program will require a minimum g.p.a. of 3.0. In consonance with the grading policy of the Graduate School, a grade of 'B' minus or below is considered unsatisfactory. The School will place a limitation on the number of 'B' minus grades that students may receive, even if they maintain an overall g.p.a. of 3.0. Students receiving two grades of 'B' minus will be terminated from the program. Students should plan regular contact with the Director of the Doctoral Program to ensure that they are meeting the course requirements for the certificate.

# Practicum Education

The following agencies are representative of those who have worked with members of the Faculty in practicum instruction during recent academic years:

A Beautiful Mind Therapy Services, PLLC

Academy of Warren

Accentcare Hospice & Palliative Care of Michigan

ACCESS - Behavioral Health

ACCESS - CHRC

Adoption & Foster Care Specialists, Inc.

Adoption Option, Inc.

Advanced Technology Academy

Adventurous Heart Therapy, PLLC

Affirmations Community Center

Agency - Mock

Algonac Community Schools

All Well-Being Services

Allen Park Public Schools

Alternatives for Girls

Alzheimer's Association - Greater Michigan Chapter

AMER Foundation

American Indian Health & Family Services

Anchor Bay School District

Andel Therapeutic Solutions

Angela Hospice

Ann Arbor Center for Independent Living

Ann Arbor Public Schools

APIA Vote - MI

Arab-American and Chaldean Council

Arbor Circle

Arc of Macomb County

Arc of Northwest Wayne County, The

Area Agency on Aging 1B

Area Agency on Aging 1C - The Senior Alliance

Arts Academy in the Woods

Arts Academy in the Woods High School

Ascension Crittenton

Ascension Macomb Hospital

Ascension St. John Hospital

Associated Management Company, The

Assured Family Services - Juvenile Assessment Center

Assured Hospice

Autism Alliance of Michigan

Avalon Healing Center

Avalon Housing

Avondale School District

Azalea Therapy & Consultation Services

Baby Court

Barack Obama Leadership Academy

Barbara Ann Karmanos Cancer Institute

Beacon Day Treatment - Southgate Comm. School Dist.

Beaumont Rehabilitation and Continuing Care-Dearborn

Beaumont Teen Health Center-Taylor

Beginning Step

Behavioral Care Management Group

Behavioral Center of America - Stone Crest Ctr.

Behavioral Center of Michigan

Being Human Group

Berkley School District

Best Buy Health

Bethany Christian Services

Beyond Focused

Bicentennial Tower

Big Brothers Big Sisters of SE Michigan

Bio-Med Behavioral Healthcare

Birmingham Public Schools

Black Family Development, Inc.

Black Therapist Support Network of Detroit

Blood Cancer Foundation of Michigan, The

Blue Water Center for Independent Living

Blue Water Counseling

Branton and Associates, LLC

Bridge Academy West

Bridging Communities Inc.

Brighton Hospice

Build Institute

Canadian Mental Health Association, Windsor-Essex County Branch

CAO Home LLC/CFO Management LLC aka Almost Home Michigan LLC

Capuchin Soup Kitchen - Emergency Assistance

Care and Transformation Center

Care House - Macomb County Child Advocacy Center

Care House of Oakland County

Care House of Oakland County-Prevention Dept.

Care Matters

CARE of Southeastern Michigan

Carefirst Community Health Services

Cason Adult Day Program

Cass Community Social Services, Inc.

Catholic Charities of Southeast Michigan

Catholic Social Services of Washtenaw County

Centene Corporation

Center For Counseling, The

Center For Counseling, The - Virtual

Center for Forensic Psychiatry

Center For Relationship And Sexual Health, The

Center Line Public Schools

Central City Integrated Health

Centre HRW

Cesar Chavez Academy Elementary

Cesar Chavez Academy High School

Cesar Chavez Academy Middle School

Chadsey Condon Community Organization

Chaldean American Ladies of Charity

Chaldean Community Foundation

Cheers to Life Counseling

Cherry Health- Community Treatment Center

Child and Family Charities

Children's Center, The

Children's Hospital of Michigan

Chippewa Valley Coalition for Youth & Families

Chippewa Valley Schools

CIS of Michigan

City of Dearborn, The

City of Detroit

City of Detroit Health Department

City of Garden City

City of Mount Clemens

City of Westland

Clarenceville School District

Clarkston Community Schools

Clarkston Specialty Healthcare Center

Clear Choices Counseling Services P.C.

Clear Path Counselling & Psychotherapy Services

Clintondale Middle School

CMHA Lambton Kent

College of Education Upward Bound Program

Common Ground - The Sanctuary

Community & Home Supports, Inc.

Community Action House

Community Action Network Hikone Community

Community Engagement in Health

Community Health and Social Services (CHASS) Center, Inc.	DaVita - Multiple locations
Community Health Awareness Group	Dawn Farm
Community Housing Network, Inc.	Dearborn Academy, The
Community Living Services, Inc.	Dearborn Public Schools
Community Network Services Health Care	Deeper Roots Wellness LLC
Community Programs, Inc.	Department of Health and Human Services
Community Resource Center for Bahamas Commonwealth	Department of Human Services - South Central
Community Roots	Department of Human Services - Western Wayne
Compassus Hospice	Dept. of Health & Human Services - Port Huron
Comprehensive Youth Services - The Harbor	Detroit Action
Congress of Communities	Detroit Area Agency on Aging
Connect Detroit	Detroit Area Agency on Aging - Caregiver Support
Conner Creek Life Solutions	Detroit CHEMpreneurIST
Core Psych, PLLC	Detroit Disability Power
Corewell Health - Advance Care Planning	Detroit Friendship House
Corewell Health - Royal Oak -Neurology Adult & Peds	Detroit Justice Center
Corewell Health -Taylor	Detroit Life Is Valuable Everyday (DLIVE)
Corewell Health Center for Exceptional Families	Detroit Parks Coalition
Corewell Health- Trenton Southshore Campus	Detroit Partnership for Education Equity & Research
Corewell Health - Dearborn, Oakwood Campus	Detroit Public Schools
Corktown Health Center	Detroit Receiving Hospital - Medical/Case Mgmt.
Corner Health Center	Detroit Receiving Hospital - Psychiatry
Corporation for Supportive Housing	Detroit Recovery Project
COTS	Detroit Regional Chamber Detroit Promise Path Program
Courtyard Manor of Wixom	Detroit Rescue Mission Ministries
Covenant House Michigan	Detroit Wayne Integrated Network
Crestwood School District	Detroit Youth Violence Initiative/Cease Fire
Crossing Paths Christian Counseling	Development Centers - Adult Services
Crossroads of Michigan	Development Centers - CCBHC
CSI Support & Development	Development Centers - Children's Outpatient Services
CST Counseling and Transitional Services	Development Centers - Early Childhood Mental Health
David P. Weikart Center for Youth Program Quality	Distinctive Schools - MI

Diversified Counseling and Consulting Services

DMC Harper University Hospital

DMC Tenet Physician Resources (TPR)

Domestic Violence Interventions

Downtown Windsor Community Collaborative

Dream Centers of Michigan

East China School District - St. Clair

Easterseals - Adult Mental Health

Easterseals - Family Mental Health

Easterseals - MORC

Easterseals Michigan

Eastpointe Community Schools

Eastside Community Network

Eastwood - Clinton Twp.

Eastwood - Detroit

Eastwood - Livonia

Eastwood - Novi

Eastwood - Residential

Eastwood - Rochester

Eastwood - Southfield

Eastwood - St. Clair Shores

Eastwood - Warren

Ebenezer Community and Cultural Center

Ecorse Public Schools

Eisenhower Center

Eldercare & Caregiver Solutions, L3C

Ele's Place Ann Arbor

Elizabeth Fritz Consulting, LLC

Elmhurst Home, Inc.

Emergence Collective

EMU Counseling and Psychological Services

Ennis Center for Children

ENOUGH Initiative, The

Essex County Diversion Program

FairSky

Faith Counseling

Family and Children's Services of Midland

Family and Community Services, Inc.

Family Assessment Clinic

Family Empowerment Program, The

Family Health Care

Family Independence Initiative-Detroit Dept.

Family Medical Center

Family Medical Center - Detroit

Family Service & Children's Aid

Family Services Windsor-Essex

Family Youth Interventions

Family, Health & Harmony, LLC

FARM - Family Assistance for Renaissance Men

Farmington Public Schools

Fatherhood Policy Group

Federal Community Defender Office

Federation of Youth Services

Ferndale Lower Elementary

First Step

Fitzgerald Public Schools

Flint Community School District

Flint Odyssey House, Inc.

FOCUS Detroit

Forest View Hospital

Forever Families

Fostering Futures

Foundations Detroit

Franklin Wright Settlements

Fraser Public Schools



Freedom House	Harambee Care
Fresenius Kidney Care	Harbor Oaks Hospital
Friendship Circle	Harper Woods Public Schools
Full Circle Foundation	Hartford Village
Garden City Public Schools	Hartland Individual and Family Therapy Services, LLC
GCCARD Head Start	HAVEN
GEE Academies	Havenwyck Hospital
GEE Academies/Frontier Int'l Academy	Hawthorn Center
Genesee Health System	Hazel Park Schools
Gibraltar School District	Healing Hearts Therapy LLC
Gilda's Club Metro Detroit	Heart to Heart Hospice
Girls Group	Heat and Warmth Fund, The
Global Detroit with Caribbean Community Service Center	Hegira
Global Psychological	Hegira - Lincoln Park
Grandmont Rosedale Development Corporation	Hegira -Taylor
Gratiot-Isabella RESD	Hegira Health - Adult Outpatient Services
Great Futures Family Services	Helm at the Boll Life Center, The
Great Lakes Bay Health Center	Henry Ford Academy
Grosse Ile Township Schools	Henry Ford Health System - Dearborn
Grosse Pointe Public Schools	Henry Ford Health System - Greenfield Health Systems
Growth Works - Garden City	Henry Ford Health System - Henry Ford Cancer Institute
Growth Works - Plymouth	Henry Ford Health System - Hospice
Growth Works-Vassar	Henry Ford Health System - Mt. Clemens
Guidance Center - Kids-TALK Children's Advocacy Center	Henry Ford Health System - Population Health Management
Guidance Center, The	Henry Ford Hospital
Guidance Center, The - Kids-TALK CAC	Henry Ford Hospital - Infectious Diseases
Guiding Harbor	Henry Ford Kingswood Hospital
Hamtramck Academy	Henry Ford Macomb
Hamtramck Public Schools	Henry Ford SandCastles
Hands Across the Water	Henry Ford Wyandotte Hospital
Hannan Center	Higher Learning Services
Happy Mama Counseling PLLC	Hilltop Counseling

Holly Area Schools	Intentional Counseling Services
Holy Cross Services	International Academy of Flint
Home of New Vision	International Institute of Metropolitan Detroit
Homeless Action Network Detroit - HAND	It Takes a Village, Inc
Honor Community Health	JARC
Hope Community Outreach and Development	Jewish Family Service
Hope Hospitality & Warming Center, Inc.	Jewish Family Services of Washtenaw County
Hope In Counseling	Jewish Hospice and Chaplaincy Network
Hope Network New Passages - Flint/Saginaw	John Allen Elementary School
Hope Network New Passages - Macomb	John D. Dingell VA Medical Center
Hope of Detroit Academy	John D. Dingell VA Medical Center - Mental Health
Hospice Compassus	John McGivney Children's Centre
Hospice of Michigan	Journey To Healing
Hospice of Michigan - Washtenaw	Judson Center - Dearborn
Hospice of Michigan, PEC	Judson Center - Farmington Hills
Hospice of Windsor and Essex County	Judson Center - Macomb County Services
Hospitality House Food Pantry	Judson Center, Inc.
Human Development Center	Justice For Our Neighbors
Hurley Medical Center	JVS + Kadima - Detroit
Huron Behavioral Health	JVS + Kadima - Southfield
Huron Intermediate School District	Karmanos Cancer Institute Farmington Hills
Huron School District	Kent County Office of the Defender
Huron Valley-Sinai Hospital - Charach Cancer Treatment Center	Key Development Center
iAMERICA	Kranz Integrated Cognitive Rehab
ICHANGE	L'Anse Creuse Public Schools
Imani Ya Kupinga	LACASA
Imlay City Schools	LAHC: Leaders Advancing and Helping Communities
Impact Consulting Services	Lake Orion Community Schools
Innovative Therapeutic Solutions	Lake Shore Public Schools
InSight Youth and Family Connections	Lakeridge Village
Institute of Gerontology	Lakeview Public Schools
Integral/TherapMe/Intertwined	Leona Group, The
Integro, LLC	

Life Journey Psychological Services, PLLC	Matrix Human Services
Life Skills Village, LLC	Matrix Human Services - IMH
Light of The World Deliverance Ministries International	Matrix Human Services - Youth Assistance Program
Lighthouse MI	McGregor Elementary- Rochester Community Schools
Lincoln Behavioral Services - Gathering Place Clubhouse	MCHS Family of Services
Lincoln Behavioral Services, Redford	McLaren Flint
Lincoln Consolidated Schools	McLaren Homecare & Hospice
Lincoln Park Public Schools	McLaren Hospital - Macomb
Linden Charter Academy	McLaren Macomb Senior Behavioral Health
Live Light Birth & Family, LLC	McLaren Port Huron
Livingston County Community Mental Health	Medical Team Inc., The
Livingston County United Way	Melvindale Northern Allen Park Public Schools-Melvindale H.S.
Livonia Public Schools	Melvindale Northern Allen Park School Dist.-Strong M.S.
Logical Choice LLC	Melvindale-Northern Allen Park Schools - Allendale Elem.
Loring Therapy	Mental Health Connections
Lucid Lane	Mercy Education Project
M.I.N.D.S. - Moving In New Directions	Metro Health Foundation
Macomb Co. Community Mental Hlth. - Specialized Residential Services	MI Organization on Adolescent Sexual Health (MOASH)
Macomb Co. Community Services Agency - Office of Senior Services	Michigan Association for Infant Mental Health
Macomb County Community Mental Health	Michigan Collegiate Schools
Macomb County Community Mental Health - ACT	Michigan Community Health Worker Alliance (MiCHWA)
Macomb Family Services	Michigan Community Resources
Macomb Intermediate School District	Michigan Community VNA
Macomb Therapy Group	Michigan Crisis Response Association
Madison School District	Michigan Department of Health and Human Services
Maggie's Wigs 4 Kids of Michigan	Michigan Humane
Maka SIL & Group Home, Inc.	Michigan Legal Services
Mariner's Inn	Michigan Modern Psychology
Maritime Academy of Toledo, The	Michigan National Organization for Women
Martha T. Berry Medical Care Facility	Michigan Parkinson Foundation
Marycrest Manor	Michigan Roundtable for Diversity
Maryvale - Rotary Home	Michigan United
	Michigan Veterans Foundation

MidMichigan Medical Center - Alpena

Milford Counseling, Inc.

Mission Point of Warren

Momentum Academy

Monroe Co. Intermediate School District

Monroe Community Mental Health Authority

Motor City Center for Hope - Dearborn

Motor City Center for Hope - Detroit

Motor City Center for Hope - Eastpointe

Mount Clemens Community Schools

Mpowered LLC

Mustard Seed Family Counseling

MYHOPES with Hope and Thrive Counseling Services

MyPlace Jackson

NAMI DETROIT

National Association of Social Workers - Michigan Chapter

National Council of Alcoholism & Drug Dependence

National Council of Alcoholism & Drug Dependence - Administration

National Kidney Foundation of Michigan, The - Disease Prevention

Neighborhood Defender Service of Detroit

Neighborhood Service Organization

New Beginnings Adult Center Inc.

New Foster Care Organization, The

New Frontier Counseling Services

New Haven Community Schools

New Haven Community Schools - Endeavour

New Oakland Family Centers

New Paths Inc.

NOAH Project, The

NorServ Group, Ltd.

North Flint Neighborhood Action Council

Northeast Integrated Health

Northern Lakes Community Mental Health

Northville Public Schools

Northwest Initiative

Novi Lakes Health Campus

Oak Park Schools

Oakland Co. Friend of the Court

Oakland Community College

Oakland Community Health Network (OCHN)

Oakland County Sheriff's Office

Oakland Family Services-Pontiac

Oakland Health LLC

Oakland Livingston Human Service Agency

Oakland Schools Technical Campus - Northeast

Oakland Schools Technical Campus - Northwest

Oakland Schools Technical Campus - Southeast

Oakland Schools Technical Campus - Southwest

Oakland Schools Wraparound

Oakside Scholars

OhioGuidestone

Old Redford Academy School District

On My Own of Michigan

On Your Side Family Services, LLC

One Love Global, Inc.

Open Door Ministry - Fort St. Presbyterian

Optimum Adult Day Services

Orchards Children's Services

Ozone House

PACE Southeast Michigan

PACE Southeast Michigan - Public Affairs & Philanthropy

Paragon Psychological Services

Parkside Family Counseling, LLC

Partners 4 Health

Passages - Pathway to Healing

Pathways 2 Christian Counseling Center	Rivers Bend PC
Paul Martin Home for Boys	Riverview Community School District
PCS-Global, Inc.	Rochester Community Schools-Long Meadow Elementary
Peace of Mind Therapy	Rochester Community Schools-West Middle School
Perfecting Community Development Corp.	Royal Oak School District
Perfectus Consulting Inc.	Ruth Ellis Center
Personalized Nursing LIGHT House, Inc.	Sacred Heart Rehabilitation - Clearview Residential
Pontiac General Hospital	Sacred Heart Rehabilitation Center
Pontiac School District	Sacred Heart Rehabilitation Center - St. Clair Shores
Pontiac School District - Peace Academy Preschool	SafeHouse Center
Positive Images, Inc.	Saginaw County CMH Authority
PR Kids MIHP	Saginaw Psychological Services
Professional Counseling Center	Saginaw Township Community Schools
Professional Outreach Counseling Services	Salvation Army, The
Promedica Hospice - Flint	Samaritan Behavioral Center
Promedica Hospice - Southfield	Samaritas - SE Behavioral Health
Psychological Professional Services, P.C.	Sanctum House
PsyGenics, Inc.	Sanilac County Community Mental Health
Radical Wellbeing Center	Sanilac County Intermediate School District
Rainbow Center of Michigan	SASHA Center
Raising Communities Adult Social Services	SAY Detroit Play Center at Lipke Park
Reach Charter Academy	Selective Care Case Management LLC
Recovery Technology	Senator Stephanie Chang, Office of
Redford Union Schools	Serve Squad
Redford Union Schools - Hilbert Elementary	Services to Enhance Potential (STEP)
Redford Union Schools: Elementary Day Treatment Stuckey	Shanle Psychological Services - Detroit
Rehabilitation Institute of Michigan	Shanle Psychological Services - Flint
Renewal Christian Counseling Center	Shanle Psychological Services - Lincoln Park
Residential Hospice	Shanle Psychological Services - Pontiac
Reverence Home Health and Hospice	Shanle Psychological Services - Roseville
Richmond Community Schools	SHAR Macomb
River Rouge School District	SHAR, Inc.



Shelby Nursing and Rehabilitation	St. Vincent de Paul Journey to Housing Program
Shorepointe Health and Rehabilitation	Starfish Family Services - IMH
Siena Literacy Center	Starfish Family Services - Lifespan Clinical Services
Sinai-Grace Hospital - Psychiatry	Starr Commonwealth
Sinai-Grace Hospital Outpatient Behavioral Health	State Appellate Defender Office
Six Feet Over	State Representative Joe Tate's Office
Sobriety House, Inc.	Stepanski Early Childhood Center
Social Work 2	Strategic Community Partners
Sollars and Associates, Inc.	Student Advocacy Center
SOS Community Services	Student Leadership Services (SLS)
South Lyon Schools	Sugar Law Center for Economic and Social Justice
Southeast Michigan Senior Regional Collaborative	Susan G Komen Greater Detroit
Southfield Mental Health Associations	Swartz Creek Community Schools
Southgate Community Schools	Taylor Exemplar Academy
Southwest Detroit Environmental Vision	Taylor School District
Southwest Economic Solutions	Team Wellness Center
Southwest Economic Solutions - Adult Learning Labs	Team Wellness Center - Southgate
Southwest Solutions	Tender Heart
Spaulding for Children	The Orchards
Spectrum Child and Family Services	Therapeutics, LLC
Spectrum Juvenile Justice Services	Therapyology
St. Anthony Healthcare Center	Therapyspa
St. Clair County Community Mental Health	Three Oaks Hospice
St. Clair County Day Treatment Night Watch	Thriving Enhanced Services, LLC (DBA Superior Center)
St. Croix Hospice	Thumb Area Psychological Services, LLC
St. John Community Health - Teen HYPE	Toledo Zoo, The
St. John Providence Health System - Open Arms Grief Support Program	Training & Treatment Innovations, Inc.
St. John Providence Hospital - Novi Campus	Training & Treatment Innovations, Inc. - Oxford
St. John Providence Hospital - Southfield	Transformational Choices Holistic Counseling and Therapy
St. John-Ascension Macomb Oakland Hospital	Transformative Mind Counseling LLC
St. Mary Mercy Hospital	Transportation Riders United, Inc. (aka TRU)
St. Michael and All Angels Episcopal Church	Travelers Aid Society of Metropolitan Detroit
St. Vincent and Sarah Fisher Center	

Trenton Public Schools	Victim's Assistance Program - Detroit Police Dept.
Tri-County Counseling Services	Victoria Manor Housing with Supports Home
Triad Counseling Centers	Victory in the Family Ministries, Inc.
Trilogy Health Services - The Willows at Howell	Village of East Harbor, The
Troy School District	Virtual Dialysis Support Center
Troy School District - Athens High School	Visiting Nurse Association & Blue Water Hospice
True Therapy Services	Vista Maria
Tuckerville LLC/Tuckerville Transitions Org.	Walled Lake Consolidated Schools
Turning Point, Inc.	Warren Consolidated Schools
Tuscola Intermediate School District	Warren Woods Public Schools
United Children and Family Head Start	Washtenaw County Community Mental Health (WCCMH)
United Community Housing Coalition	Washtenaw County Public Defender
United States Senator Gary Peters	Washtenaw Intermediate School District
United Way for Southeastern Michigan - Michigan No Kid Hungry	Washtenaw Literacy
United Way of Southeastern Michigan	Waterford School District
United Way/Centraide Windsor - Essex County	Wayne Center
University of Chicago Health Lab	Wayne County Juvenile Detention Facility
University of Detroit Mercy School of Dentistry	Wayne County Medical Examiner's Office
University of Michigan - School of Social Work	Wayne County Prosecutor's Office
University of Michigan CAPS	Wayne County Sheriff's Office
University of Michigan Health System	Wayne Metro Community Action Agency
University of Michigan Health System - Guest Assistance Program	Wayne-Westland Community School District
University of Michigan-Dearborn	Western Wayne Family Health Center
University Prep Art & Design	Westlund Guidance Center
Uplift Family Services	William Beaumont Hospital - Royal Oak
Urban Neighborhood Initiatives	Willow of Wonder Child & Family Therapy
Urban Renaissance Center	Windsor Essex Children's Aid Society
Utica Community Schools	Windsor Essex Community Health Centre: Sandwich Site
VA Medical Center-Ann Arbor	Windsor Family Health Team
Valley OBGYN	Windsor Regional Hospital
Van Dyke Public Schools	Windsor Regional Hospital - Ouellete Campus
Venture Counseling Center	Windsor Regional Hospital - Woman and Children

Windsor Women Working with Immigrant Women, The	Ypsilanti School District
Windsor Youth Centre	Yunion, The
Windsor-Essex Compassion Care Community	YWCA of Kalamazoo
Wolverine Human Services - Taylor	Zaman International
Wolverine Human Services - Vassar	
Women's Center of Southeastern Michigan, The	
Workit Health	
WSU - Athletics	
WSU - Business and Community Law Clinic	
WSU - Center for Latino/a and Latin American Studies	
WSU - Center for Social Work Research	
WSU - Champions Aspiring to Make Pathways to Success program (CHAMPS)	
WSU - Counseling & Psychological Services	
WSU - DMC HIV/AIDS Program	
WSU - Legal Advocacy for People with Cancer Clinic at Wayne Law School	
WSU - MI Developmental Disabilities Institute	
WSU - Office of Sexual Violence Prevention and Educ.	
WSU - Promoting Protective Policy	
WSU - Psychiatry and Behavioral Neuroscience	
WSU - Title IX Office	
WSU - Wayne Pediatrics	
WSU MJF: Justice Involved Pipeline to Higher Education	
WSU Physician's Group	
WSU Physician's Group - Psychiatry & Behavioral Neurosciences	
WSU Police Department	
WSU School of Medicine: TFCO Initiative	
WSU School of Social Work - Continuing Educ.	
WSU School of Social Work - HRSA Grant	
WSU SSW Center for Behavioral Health and Justice	
Wyandotte Public Schools	
YMCA of Metro Detroit - Metro Youth YMCA	
YMCA of Metropolitan Detroit - Farmington Family	

# COMPLETE COURSE LIST

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- HON - Honors (p. 587)
- HPE - Health and Physical Education (p. 588)

## I

- IBS - Interdisciplinary Biomedical Sciences (p. 589)
- IE - Industrial Engineering (p. 590)
- IM - Immunology and Microbiology (p. 596)
- INF - Information Sciences (p. 597)
- ITA - Italian (p. 602)

## J

- JPN - Japanese Studies (p. 604)

## K

- KHS - Kinesiology, Health and Sport Studies (p. 605)
- KIN - Kinesiology (p. 606)

## L

- LAS - Latino/Latina and Latin American Studies (p. 607)
- LAT - Latin (p. 608)
- LDT - Learning Design and Technology (p. 609)
- LED - Language Education (p. 611)
- LEX - Law (p. 612)
- LFA - Life Fitness Activities (p. 630)
- LGL - Language Learning (p. 631)
- LIN - Linguistics (p. 631)

## M

- MAE - Mathematics Education (p. 634)
- MAT - Mathematics (p. 635)
- MCT - Mechanical Engineering Technology (p. 641)
- MD1 - Medical School: Year 1 (p. 642)
- MD2 - Medical School: Year 2 (p. 645)
- MD3 - Medical School: Year 3 (p. 649)
- MD4 - Medical School: Year 4 (p. 650)
- MDR - Medical Research (p. 658)
- ME - Mechanical Engineering (p. 658)
- MED - Music Education (p. 664)
- MGG - Molecular Genetics and Genomics (p. 665)
- MGT - Management (p. 667)
- MIT - Manufacturing and Industrial Engineering Technology (p. 669)
- MKT - Marketing (p. 670)
- MLC - Med-Direct Community Learning (p. 672)
- MLS - Medical Laboratory Science (p. 672)
- MS - Mortuary Science (p. 674)
- MSE - Materials Science and Engineering (p. 676)
- MSL: Master of Studies in Law (p. 677)
- MUA - Music Ensembles and General Courses (p. 678)
- MUH - Music History (p. 683)

- MUP - Music Private Instruction (p. 685)
- MUT - Music Theory (p. 700)

## N

- NE - Near Eastern Studies (p. 702)
- NEN - Nanoengineering (p. 704)
- NEU - Neuroscience (p. 704)
- NFS - Nutrition and Food Science (p. 705)
- NUR - Nursing (p. 709)

## O

- OT - Occupational Therapy (p. 727)

## P

- PAA - Pathologists' Assistant (p. 730)
- PAS - Physician Assistant Studies (p. 733)
- PCS - Peace and Conflict Studies (p. 735)
- PH - Public Health (p. 735)
- PHA - Pharmacy (p. 738)
- PHC - Pharmacology (p. 739)
- PHI - Philosophy (p. 741)
- PHY - Physics (p. 746)
- POL - Polish (p. 752)
- PPR - Pharmacy Practice (p. 753)
- PS - Political Science (p. 756)
- PSC - Pharmaceutical Sciences (p. 762)
- PSL - Physiology (p. 765)
- PSY - Psychology (p. 768)
- PT - Physical Therapy (p. 776)
- PTH - Pathology (p. 779)
- PYC - Psychiatry (p. 780)

## R

- RDT - Radiologic Technology (p. 781)
- RLL - Reading, Language and Literature Education (p. 782)
- ROC - Radiation Oncology (p. 784)
- RSE - Research, Service and Engagement (p. 785)
- RT - Radiation Therapy Technology (p. 786)
- RUS - Russian (p. 787)

## S

- SAM - Sport Administration and Management (p. 789)
- SCE - Science Education (p. 790)
- SED - Special Education (p. 791)
- SEM - Sport and Entertainment Management (p. 792)
- SLA - Slavic (p. 793)
- SLP - Speech and Language Pathology (p. 793)
- SOC - Sociology (p. 795)
- SPA - Spanish (p. 801)
- SSE - Social Studies Education (p. 804)
- STA - Statistics (p. 804)
- STE - Sustainable Engineering (p. 805)
- STS - Study Skills (p. 806)
- SW - Social Work (p. 806)



- SWA - Swahili (p. 815)
- SYE - Systems Engineering (p. 815)

## **T**

- TED - Teacher Education (p. 816)
- THD - Theatre and Dance (p. 818)
- THR - Theatre (p. 819)
- TIS - Technology, Information Systems and Analytics (p. 831)

## **U**

- UGR - Undergraduate Research (p. 834)
- UP - Urban Planning (p. 834)
- US - Urban Studies (p. 836)

## **W**

- WMT - Welding and Metallurgical Engineering Technology (p. 837)

# ACC - Accounting

## ACC 3010 Introduction to Financial Accounting Cr. 3

Theory and practical applications of financial accounting principles; preparation and evaluation of financial statements and the items that make up these statements using real-world examples. Use of the language of business to communicate financial information about business enterprises. This course satisfies Society of Actuaries Validation by Educational Experience (VEE) in Accounting and Finance when taken with FIN 3290 with a B- or better in each course. Offered Every Term.

**Prerequisites:** BA 2300 with a minimum grade of C

## ACC 3020 Introduction to Managerial Accounting Cr. 3

Basic terms and concepts used in managerial accounting: cost behavior; cost-volume profit analysis; business planning and accounting controls; and how accounting information in managerial decision making. Offered Every Term.

**Prerequisites:** ACC 3010 with a minimum grade of C, ECO 2010 with a minimum grade of C, and BA 2300 with a minimum grade of C

## ACC 4500 Business Co-op Assignment Cr. 0

Must be elected by Professional Development Co-operative Program students during work semester. Offered for S and U grades only. No credit toward degree. Opportunity to put theory into practice on the job. Students will normally be assigned to cooperating business organizations for internship periods of one semester. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the School of Business.

**Equivalent:** FIN 4500, MGT 4500, MKT 4500

## ACC 5100 Intermediate Financial Accounting I Cr. 3

Accounting principles for preparing complete set of financial statements; how accounting meets the needs of various external users. Theories and practices of external financing of external financial reporting for organizations. Valuation and accounting for assets: cash, receivables, and inventory. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ACC 3010 with a minimum grade of C and ACC 3020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

## ACC 5110 Intermediate Financial Accounting II Cr. 3

Continuation of ACC 5100. Theories and practices underlying external financial reporting for organizations. Valuation of and accounting for specific items on the balance sheet, including property, plant and equipment, intangible assets, current and long-term liabilities, stockholders' equity, investments, income measurement concepts and issues. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ACC 5100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

## ACC 5115 Intermediate Financial Accounting III Cr. 3

Continuation of ACC 5110. Complex financial reporting topics, such as securities, earnings per share, income taxes, pensions, leases, changes and errors, disclosure issues. Cases used to integrate concepts studied in managerial, systems, and tax accounting courses in this capstone course. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ACC 5110 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

## ACC 5120 Advanced Accounting Cr. 3

Theories and practical applications of financial accounting: as learned in intermediate accounting courses; focus on accounting of consolidation and combination of business entities; accounting for foreign currency transactions; and interim and segment reporting. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** ACC 5110 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

## ACC 5130 Accounting Systems Design and Control Cr. 3

Implementation of accounting systems in a computer-intensive business environment; methods for developing and documenting Accounting Information Systems (AIS); hands-on use of enterprise resource planning software package for accounting functions. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ACC 5100 with a minimum grade of C and ISM 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

## ACC 5160 Managerial Accounting Cr. 3

Focus on management accountant as integral part of the management team. Analyzing, managing, and accounting for costs; relevance of cost management in manufacturing firms and other types of organization; solving homework problems by application of concepts covered in textbook and lectures. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ACC 3020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

## ACC 5170 Introduction to Taxation: Individuals Cr. 3

Introduction to taxation, tax research, and tax planning. Fundamental elements of individual taxation; how individuals and business owners benefit from an understanding of tax law. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ACC 3010 with a minimum grade of C and ACC 3020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

## ACC 5180 Governmental and Not-for-Profit Accounting Cr. 3

Theory and practical applications of accounting for governmental and not-for-profit organizations, and how they differ from for-profit entities. Technical accounting issues and management and regulatory issues for both state and local governments and for other governmental and non-governmental not-for-profit entities. Course is preparation for governmental and not-for-profit portion of the CPA examination. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ACC 5110 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

## ACC 5200 ERP Systems: Concepts and Practice Cr. 3

Discusses the role and function of ERP systems within organizations; analyzes the major business processes in their organization and their implementation using ERP software; provides hands-on use of ERP tools for transaction processing and decision support; and describes the use of ERP systems for customer relationship management (CRM), supply chain management (SCM), and electronic commerce. Offered for undergraduate credit only. No credit after former ISM 5200. Offered Winter.

**Prerequisites:** ACC 3010 with a minimum grade of C, ACC 3020 with a minimum grade of C, and ISM 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Fees:** \$117

**Equivalent:** TIS 5200

**ACC 5210 Blockchain Fundamentals for Accounting and Business Cr. 3**

Introduces blockchain, which is a public, transparent, secure, immutable and distributed ledger. Blockchains can be used to record and transfer any digital asset, not just currency. Progressing from a detailed study of how blockchain works in Bitcoin; this course also discusses alternative blockchain platforms; potential uses of blockchain in accounting, other areas of business, and society; and this technology's potential impact on accounting systems, business transactions, financial services, government, and banking management. This course is taught completely online. No credit after former ISM 5210. Offered Spring/Summer.

**Prerequisite:** ACC 3010 with a minimum grade of C and ACC 3020 with a minimum grade of C

**Equivalent:** TIS 5210

**ACC 5220 Data Analytics and Technologies for Accounting Cr. 3**

This course is designed to deepen students' comprehension of information systems' technical aspects and essential analytical skills for accountants. It emphasizes the role of data in various fields, aiding managerial decisions via high-quality analytics. Covering the complete data analytics cycle—from data collection, quality maintenance, to execution, and presentation—students will learn to extract, transform, and load (ETL) data from databases and explore relevant analytics. Hands-on examples and cutting-edge software used in accounting and data science will be employed. Offered Every Term.

**Prerequisite:** ACC 5110 with a minimum grade of C and ACC 5160 with a minimum grade of C

**ACC 5250 Introduction to Internal Auditing Cr. 3**

Theory of internal auditing and how it relates to the CPA audit and the audit committee. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** ACC 3010 with a minimum grade of C and ACC 3020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ACC 5270 Introduction to Taxation: Business Entities Cr. 3**

Builds on basic U.S. tax concepts learned in ACC 5170. Taxation of corporations, S corporations, partnerships, estates and trusts. Accounting for income taxes on financial statements, taxation of corporate reorganizations and liquidations, basic multi-state and multi-national taxation principles, and transfer taxes and wealth planning. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** ACC 5170 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**ACC 5890 Internship in Accounting or Tax Practice Cr. 3**

Student performs assigned tasks and responsibilities in a professional manner under supervision of host-employer for minimum 160 hours during the semester, abiding by the rules and regulations established by the employer and expected of all employees; student must satisfactorily complete all course requirements outlined in the internship program for the School of Business Administration. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**ACC 5990 Directed Study in Accounting Cr. 1-3**

Research conducted under supervision of full-time faculty member in an area of special interest to student and faculty member. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**ACC 5996 Auditing, Assurance and Attestation Cr. 3**

Principles and procedures used by public accountants in examination of financial statements of companies and other organizations; issuing an independent opinion; professional standards and responsibilities of the certified public accountant. Offered Every Term.

**Prerequisites:** ACC 5115 with a minimum grade of C (may be taken concurrently) and BA 3400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**ACC 7100 Financial Accounting for Decision Making Cr. 3**

This course provides an introduction to the financial reporting environment, incentives of managers issuing financial statements, and analysis and interpretation by users of such disclosures. It begins by viewing the financial accounting system as a language, and familiarizes students with the structure, usage, conventions, and the grammar of accounting as a business language. No credit after ACC 7040 and ACC 7050. Offered Fall, Winter.

**Prerequisites:** BA 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7115 Financial Statement Analysis Cr. 3**

Development of ability to extract and interpret information reported in financial statements in order to evaluate the operating performance and financial status of a firm. Offered Fall, Winter.

**Prerequisites:** ACC 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**ACC 7120 Introduction to Taxation: Individuals Cr. 3**

Introduction to taxation, tax research, and tax planning. Fundamental elements of individual taxation; how individuals and business owners benefit from an understanding of tax law. No credit after ACC 5170 or undergrad. equiv. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**ACC 7122 Advanced Accounting I Cr. 3**

Theory and practical applications of accounting for consolidation and combination of business entities and accounting for foreign currency transactions and interim and segment reporting. No credit after ACC 5120 or other undergrad. equiv. course. Offered Winter.

**Prerequisites:** ACC 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7130 Intermediate Managerial Accounting Cr. 3**

Building on managerial accounting skills mastered in B A 7000, this course examines accounting and control issues and the use of information in the decision-making process from a managerial perspective, through the study of cases. No credit after ACC 5160 or undergrad. equiv. Offered Fall, Winter.

**Prerequisites:** BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7145 Accounting Systems: Design and Controls Cr. 3**

Implementation of accounting systems in the computer-intensive business environment; methods for developing and documenting Accounting Information Systems (AIS); evaluation of controls; work with accounting software package. No credit after ACC 5130 or equiv. Offered Every Term.

**Prerequisites:** BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7148 ERP Systems and Business Integration Cr. 3**

Enterprise Planning (ERP) systems are the primary software packages for accounting, operational, and managerial activities of organizations. How ERP systems integrate and coordinate business processes and the management of the organization. Extensive hands-on use of popular software packages for key business activities such as sales, procurement, and production. Offered Winter.

**Prerequisites:** BA 7000 with a minimum grade of C and ISM 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$117

**ACC 7155 Forensic Accounting Cr. 3**

Accounting and legal fundamentals of forensic accounting. Topics include tax and financial statement fraud, information security, and forensic accounting applications in such cases as bankruptcy, identity theft, and organized crime and terrorism investigations. Offered Fall, Winter.

**Prerequisites:** BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7165 Internal Audit I Cr. 3**

Theory of internal audit; the context within which internal auditing functions; its relation to the external audit and the audit committee. Offered Winter.

**Prerequisites:** BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7170 International Accounting Cr. 3**

Issues in international business environment: currency translations; consolidated statements for multinational corporations, inflation accounting; other issues. Offered Fall.

**Prerequisites:** ACC 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7180 Auditing Cr. 3**

Principles and procedures of internal and external auditing; statistical sampling and other modern auditing techniques; professional standards and responsibilities of the auditor. Offered Every Term.

**Prerequisites:** ACC 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7188 Governmental and Not-for-Profit Accounting Cr. 3**

Theory and practical applications of accounting for governmental and not-for-profit organizations, and how they differ from for-profit entities. Technical accounting issues and management and regulatory issues for both state and local governments and for other governmental and non-governmental not-for-profit entities. No credit after ACC 5180 or undergrad equiv. Offered Every Term.

**Prerequisites:** ACC 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7190 Advanced Auditing Cr. 3**

Advanced principles and procedures to perform financial audits; case studies of emerging auditing techniques and methods to detect fraud; application of advanced statistical sampling techniques; analysis of auditor's role in society. Offered Intermittently.

**Prerequisites:** ACC 7180 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7280 Accounting Data Analytics Cr. 3**

Introduces concepts, techniques, and software applications used to analyze accounting and related data to support financial decision-making and planning. These data are generated both within and outside the organization. Offered Winter.

**Prerequisites:** BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7290 Blockchain: An Accounting and Business Perspective Cr. 3**

Introduces blockchain: a public, transparent, secure, immutable, and distributed ledger. Blockchains can be used to record and transfer any digital asset, not just currency. The course covers the workings, applications, and potential impact of this revolutionary technology. Offered Fall.

**Prerequisites:** BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7300 Accounting and Tax Research and Professional Communications Cr. 3**

Methodology of accounting and tax research, including computer-assisted research and the communication of argument and conclusions. Sources and roles of legislative, executive, judicial and professional bodies in creating, interpreting and enforcing policies and practices. Commonly-used research databases studied through cases. Offered Every Term.

**Prerequisites:** ACC 7120 with a minimum grade of C (may be taken concurrently) and BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7310 Business and Professional Ethics for Managers and Accountants Cr. 3**

Laws, regulations and professional codes of conduct as reflection of expectations of corporate stakeholders regarding the ethics of accountants and managers. Significance of integrity, independence, and reputation in light of these rules. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7320 Introduction to Taxation: Business Entities Cr. 3**

Builds on basic U.S. tax concepts learned in ACC 5170/ACC 7120. Taxation of corporations, S corporations, partnerships, estates and trusts. Accounting for income taxes on financial statements, taxation of corporate reorganizations and liquidations, basic multi-state and multi-national taxation principles, and transfer taxes and wealth planning. Offered Fall, Winter.

**Prerequisites:** ACC 7120 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**ACC 7325 Advanced Tax Research and IRS Procedures Cr. 3**

Builds on research skills developed in ACC 7300 focusing on tax research methodology, writing and citation; role of legal authorities in taxation; IRS practices and procedures. This course requires one-on-one work with the instructor. Offered Intermittently.

**Prerequisites:** ACC 7300 with a minimum grade of C and ACC 7320 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7335 Taxation of Corporations and Shareholders Cr. 3**

Advanced taxation issues related to consolidated tax returns; corporate acquisitions, mergers, divestitures, and reorganizations; survival of tax attributes; accounting for uncertainty in income taxes; other advanced tax topics. This course requires one-on-one work with the instructor. Offered Fall.

**Prerequisites:** ACC 7300 with a minimum grade of C and ACC 7320 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7340 Taxation of Pass-Through Entities Cr. 3**

Tax rules governing formation, operation, and dissolution of partnerships, S corporations, and limited liability companies; aggregate and entity theories; distributions, basis adjustments, dispositions, and other related tax issues. This course requires one-on-one work with the instructor. Offered Intermittently.

**Prerequisites:** ACC 7300 with a minimum grade of C and ACC 7320 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7400 Taxation of International Business and Multinational Transactions Cr. 3**

Taxation of U.S. persons investing or doing business outside the United States. Foreign tax credit, sourcing rules, controlled foreign corporation and related tax issues, transfer pricing issues, and overview of tax issues related to non-U.S. persons doing business in the United States. Offered Intermittently.

**Prerequisites:** ACC 7300 with a minimum grade of C and ACC 7320 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7410 Tax Accounting Methods and Accounting for Income Taxes Cr. 3**

Tax accounting issues faced by business entities and their tax advisers, including tax accounting methods and periods, inventory methods, tax accrual workpapers, tax uncertainties and deferred taxes. Offered Intermittently.

**Prerequisites:** ACC 7050 with a minimum grade of C, ACC 7120 with a minimum grade of C, and ACC 7150 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7420 Taxation by State and Local Jurisdictions Cr. 3**

Survey and examination of state, local, and some international income, franchise, property, sales, and use taxes and their impact on entrepreneurs. Emphasis on North American jurisdictions. Offered Intermittently.

**Prerequisites:** ACC 7120 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7450 Taxes and Business Strategy Cr. 3**

Effect of taxation on business decisions such as choice of form of organization, international operations, employee and executive compensation strategies, business mergers, acquisitions and divestitures. Business decisions examined by studying tax, accounting, and non-tax considerations from a management perspective. Offered Intermittently.

**Prerequisites:** ACC 7300 with a minimum grade of C and ACC 7320 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ACC 7990 Internship in Accounting or Tax Practice Cr. 1-3**

Application and assessment of concepts developed in studies through meaningful real-world experience. Student must obtain internship position and complete internship application form before registering. Student performs assigned tasks in professional manner under supervision of host-employer for minimum 160 hours during semester; abides by rules and regulations established by employer and expected of all employees; and must complete all course requirements outlined by the School for the internship program. Offered Every Term.

**Prerequisites:** ACC 7100 with a minimum grade of C and BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the MS in Accounting or MS in Taxation programs; enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ACC 7995 Directed Study in Accounting Cr. 1-3**

Opportunity to conduct research under the supervision of a member of the graduate faculty in areas of special interest to student and faculty member. Offered Every Term.

**Prerequisites:** ACC 7040 with a minimum grade of C, ACC 7050 with a minimum grade of C, and BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**ACC 7998 Seminar in Tax and Accounting Policy Cr. 3**

Seminar topics include history of accounting and tax policy in the U.S., establishment of accounting and tax rules and standards, professional responsibilities of accounting and tax professionals; relationship and application to recent and current events. Offered Fall, Winter.

**Prerequisites:** ACC 7050 with a minimum grade of C, ACC 7120 with a minimum grade of C, and ACC 7300 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a MS in Accounting or MS in Taxation degrees; enrollment limited to students in the Law School or School of Business.

## ACO - Art: Core

**ACO 1200 Surface Studio Cr. 3**

Core studio for visual communication in a spectrum of two-dimensional media and color theory. Explorations include elements and principles of design, basic digital technique, basic traditional material handling, creative thinking, critical discussion and problem solving. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$140

**ACO 1230 Space Studio Cr. 3**

Core studio for visual communication in a spectrum of three-dimensional media and composition in the built environment. Explorations include elements and principles of design, basic digital techniques, material handling, shop experience, and creative problem solving. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$140

**ACO 1270 Time Studio Cr. 3**

Core studio for visual communication in time-based media composition including elements and principles of design, basic time-based methods for audio/video production, performance, social practice, creative thinking, and critical discussion and problem solving. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$75

## ACR - Art: Ceramics

**ACR 2550 Introduction to Ceramics Cr. 3**

Introduction to the technical processes and conceptual concerns of working with the ceramic material. Students will explore various methods of forming with earthenware to make both functional and expressive works out of clay. Offered Every Term.

**Fees:** \$75

**ACR 3550 Intermediate Ceramics Cr. 3**

Focuses on the refinement of technical skills with an emphasis on conceptual development related to materiality. Offered Winter.

**Prerequisites:** ACR 2550 and (ACO 1200, ACO 1230, ACO 1270, or ADR 2550)

**Fees:** \$75

**ACR 4000 Ceramic Multiples I Cr. 3**

Intermediate ceramics course focusing on an introduction to the technical processes of throwing, prototyping, and mold making. Offered Fall.

**Prerequisites:** (2 of ACR 2550 and (ADR 1050, ACO 1200, ACO 1230, or ACO 1270) or AID 5330)

**Fees:** \$125



**ACR 4550 Advanced Ceramics I Cr. 3**

Focuses on conceptual development as it relates the creation of a unified body of work. Topics may include discussions of advanced techniques, professional practices, and contemporary issues in ceramics. Offered Winter.

**Prerequisites:** ACR 3550

**Fees:** \$90

**ACR 5000 Ceramic Multiples II Cr. 3**

Advanced ceramics course focusing on the technical processes of throwing, prototyping, mold making, glaze calculation, and firing. Discussions may also include issues of professional practice, marketing, and branding. Offered Fall.

**Prerequisites:** ACR 4000

**Fees:** \$125

**Repeatable for 6 Credits**

**ACR 5550 Advanced Ceramics II Cr. 3**

Continuation of ACR 4550; Advanced ceramics course focusing on conceptual development as it relates the creation of a unified body of work. Topics may include discussions of advanced techniques, professional practices, and contemporary issues in ceramics. Offered Every Term.

**Prerequisites:** ACR 4000 and ACR 4550

**Fees:** \$90

**Repeatable for 12 Credits**

**ACR 5880 Directed Projects in Ceramics Cr. 1-6**

Independent projects and study in consultation with faculty. Offered Every Term.

**Fees:** \$90

**Repeatable for 6 Credits**

**ACR 7550 Graduate Problems in Ceramics Cr. 3**

Individual problems in advanced ceramics. Offered Every Term.

**Prerequisites:** ACR 5550

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$100

**Repeatable for 24 Credits**

**ACR 8880 MFA Studio: Ceramics Cr. 3-9**

Extended problems in ceramics; individual research with eighteen to twenty-seven hours of laboratory per week. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$150

**Repeatable for 36 Credits**

## ACS - Art: Special Seminars

**ACS 3997 Professional Practices in the Visual Arts I Cr. 3**

Foundational seminar on contemporary issues in the visual arts. Topics including studio and professional practices, history, and criticism relevant to art making. This course explores historical and contemporary concerns that influence artists' creative identities, and strategies for effective methods of critiquing and communicating ideas about artistic works. Readings, group discussions, writing activities, and targeted projects will help students generate narratives about how and why they make art, and encourage them to set academic, creative, and professional goals for the future. This is the capstone course for BA in Art students; BA in Art students should take this in their final year. BFA students should take this course in their junior year. Offered Fall, Winter.

**Prerequisites:** 3 of ACO 1200, ACO 1230, ACO 1270, and ADR 1050

**ACS 5200 Art Gallery Management Cr. 3**

Offers a larger sense of the profession gained through readings, opportunities to network within and outside Wayne State University's art galleries, and hands-on experience. The following operational fundamentals are thoroughly examined: exhibition and season design, marketing, budgeting, and standard facility requirements. Offered Winter.

**Repeatable for 6 Credits**

**ACS 5210 Art Gallery Internship Cr. 1-3**

Provides students with opportunities to serve as interns at galleries and museums internal and external to the department. Students update the instructor with documentation of significant projects on which they have worked. Offered Every Term.

**Repeatable for 6 Credits**

**ACS 5300 Studio Art Internship Cr. 1-3**

The internship will be performed in consultation with faculty. Students enrolled in the course will gain professional and practical experience in order to augment their field of study, preparing them for a career post-graduation. It is geared for studio art students who would like to gain real-world experience in an artist's studio or at a related organization/business. Students must secure a host organization or artist's studio to sponsor their internship prior to admittance into the course. The host organization or artist's studio must provide a plan-of-work outlining the work that will be performed over the course of the 10-week internship. For successful completion of this course, the host organization/artist's studio must sign the plan-of-work at the conclusion of the internship acknowledging that the student's work was completed. While unpaid internship are acceptable, paid internships are preferable. Offered Every Term.

**Repeatable for 6 Credits**

**ACS 5500 Independent Study: Art Cr. 1-2**

Independent Study: Art provides an opportunity for students to work independently on a project that is otherwise not addressed within the curriculum of their chosen field of study. Under the supervision of a faculty member, students will clarify the intent of their project and set goals for the semester. Process documentation will be required periodically throughout the semester, and projects will culminate in a portfolio document. Graduate students enrolled in this course are required to complete a thematically relevant research paper in addition to the project documentation and portfolio requirements. Coursework requirements are tailored to align with a student's individual project ideas. Offered Intermittently.

**Repeatable for 4 Credits**

**ACS 5550 Special Topics Cr. 3**

Students examine specific issues related to one or more of the department's studio disciplines. Taught on a rotational schedule by faculty from all of the fine art concentrations. Offered Every Term.

**Prerequisites:** ACO 1230, ACO 1200, and ACO 1270

**Fees:** \$30

**Repeatable for 6 Credits**

**ACS 5650 Museum Culture: Histories, Critiques, Practices Cr. 3**

The art museum as a subject of cultural history and criticism, social policy, and art. Includes panel discussions among museum professionals and opinion leaders, designed to explore current issues. Offered Yearly.

**ACS 5996 Honors Project Cr. 3**

Students complete a substantial creative project reflecting conceptual issues, determined by the student in collaboration with his/her professor. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ACS 5997 Professional Practices in the Visual Arts II Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Capstone course for BFA students. Interdisciplinary seminar on contemporary issues in the visual arts. Topics include studio and professional practices, history, and criticism related to art making. Emphasis will be placed on best practices regarding exhibition preparation and display. Course will conclude with exhibition of student work. Offered Fall, Winter.

**Prerequisites:** ACS 3997

**Restriction(s):** Enrollment is limited to students with a major in Art or Art Honors; enrollment is limited to Undergraduate level students.

**ACS 7998 Master of Arts Seminar Cr. 2-3**

Directed reading, research, bibliography. Offered fall semester only. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Art or Art Honors; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree.

**ACS 7999 Master's Essay Direction Cr. 1-3**

Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major in Art or Art Honors; enrollment is limited to Graduate level students.

**ACS 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major in Art History; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## ADA - Art: Digital Art

**ADA 2210 Introduction to Digital Practices Cr. 3**

Introductory survey of digital methods of art production; digital painting and drawing, 3D modeling, and photo manipulation. Offered Fall, Winter.

**Prerequisites:** ACO 1200, ACO 1230, ACO 1270, or APH 2400

**Fees:** \$95

**ADA 3210 Time-Based Media I: Video Art Cr. 3**

Experimental digital video techniques; exploring the workflow from camera to post production and output. Technical tuition supplemented by readings, critiques, discussions and readings of key examples of video art. Offered Fall, Winter.

**Prerequisites:** ACO 1200, ACO 1230, ACO 1270, or APH 2400

**Fees:** \$150

**ADA 3220 Introduction to Interactivity in Art Cr. 3**

Exploration of a variety of art-making strategies that utilize digital technologies and interactive media; emphasis on computer-based and online art practices and web-oriented programming languages. Offered Yearly.

**Prerequisites:** ACO 1200, ACO 1230, ACO 1270, or APH 2400

**Fees:** \$145

**ADA 4220 Time-Based Media II: Experimental Animation Cr. 3**

Strategies for creating animation-based artworks by combining traditional techniques with digital technologies. Technical tuition supplemented by readings, critiques, discussions and screenings of key examples of animation art. Offered Yearly.

**Prerequisites:** ACO 1200, ACO 1230, ACO 1270, or APH 2400

**Fees:** \$125

**ADA 4230 Time-Based Media III: Experimental 3D Animation Cr. 3**

3D modeling and animation techniques. Technical tuition supplemented by readings, critiques, discussions and screenings featuring various mainstream and experimental examples of 3D animation. Offered Winter.

**Prerequisites:** ACO 1200, ACO 1230, ACO 1270, or APH 2400

**Fees:** \$165

**Repeatable for 6 Credits**

**ADA 5240 Advanced Interactivity: Experimental Video Games Cr. 3**

Studio course focusing on video game creation from a fine arts perspective; emphasizing 2D and 3D experimental and unconventional approaches. Offered Winter.

**Prerequisites:** ADA 3220 or AGD 3260

**ADA 5250 Advanced Time-Based Media Cr. 3**

Research and project oriented studio class for intermediate and advanced students. Discussion, critique, development and refinement of technical and conceptual approaches to the application of digital video technologies within the fine arts. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$165

**ADA 5830 Directed Projects in Digital Arts Cr. 1-3**

Individual problems in electronic arts. Offered Fall, Winter.

**Fees:** \$165

**Repeatable for 6 Credits**

## ADN - Art: Design

**ADN 2410 Textiles Cr. 3**

Introduction to fibers, yarns, fabric construction, design and finishes and how they relate to selection, use and care of textile products. Offered Fall, Winter.

**Fees:** \$35

**ADN 3100 Design Process Cr. 3**

Intended for the student who is entering the design field and requires an understanding of brand identity development, design thinking, and product line development. Offered Every Term.

**Repeatable for 6 Credits**

**ADN 5000 History of Interior Design and Architecture Cr. 3**

History of architectural styles and the use of interior space with an emphasis on their application to contemporary interior design. Offered Yearly.

**ADN 5200 Ethnographic Research Methods for Designers Cr. 3**

Introduction to a set of theoretical and methodological approaches stemming from the field of anthropology. Students utilize these approaches to enrich and inform their design processes from conceptual creation, to ideation and design development, to user testing. Offered Fall, Winter.

**Repeatable for 6 Credits**

**ADN 5430 History of Costume Cr. 3**

Survey of historic costumes from prehistoric to present. Emphasis on influence of social factors. Offered Fall.

**ADN 5500 Independent Study: Design Cr. 1-2**

Independent Study: Design provides an opportunity for students to work independently on a project that is otherwise not addressed within the curriculum of their chosen field of study. Under the supervision of a faculty member, students will clarify the intent of their project and set goals for the semester. Process documentation will be required periodically throughout the semester, and projects will culminate in a portfolio document. Graduate students enrolled in this course are required to complete a thematically relevant research paper in addition to the project documentation and portfolio requirements. Coursework requirements are tailored to align with a student's individual project ideas. Offered Intermittently.

**Repeatable for 4 Credits**

**ADN 6320 History of Modern Design I Cr. 3**

Major design trends in America and Europe from mid-nineteenth century to World War I. Covers a broad spectrum of the applied arts. Offered Fall.

**ADN 6330 History of Modern Design II Cr. 3**

Major design trends in America and Europe from end of World War I through 1950s. Covers a broad spectrum of the applied arts. Offered Winter.

## ADR - Art: Drawing

**ADR 1050 Drawing I Cr. 3**

Introduction to basic drawing skills such as linear perspective, light and shadow, use of dry and wet media; emphasis on composition. Drawing primarily still life subjects. Offered Fall, Winter.

**Fees:** \$30

**ADR 1060 Drawing II Cr. 3**

Further development of basic drawing skills and concepts. Continued exploration of media. Drawing based on observation and imagination. Offered Fall, Winter.

**Prerequisites:** ADR 1050

**Fees:** \$30

**ADR 2070 Beginning Life Drawing Cr. 3**

Initial exploration of human figure using limited drawing media; essential aspects of the figure: proportion, gesture, composition. Offered Fall, Winter.

**Prerequisites:** ADR 1050

**Fees:** \$90

**ADR 2130 Introduction to Alternative Drawing Methods and Materials Cr. 3**

Survey of contemporary and traditional materials and methods of paper making, paper casting, paper cutting and paper folding, as well as an introduction to book binding and altered books. Compositions based on observation and imagination. Offered Yearly.

**Prerequisites:** ACO 1200

**Fees:** \$80

**Repeatable for 6 Credits**

**ADR 3070 Intermediate Life Drawing Cr. 3**

Continued systematic study of human figure using broad range of media. Offered Fall, Winter.

**Prerequisites:** ADR 2070

**Fees:** \$90

**ADR 5060 Advanced Concepts in Drawing and Painting Cr. 3-6**

Emphasis on individual projects using any appropriate medium. Work is created independently (out of class) with scheduled critiques for faculty guidance; may include lectures, demonstrations, off-campus visits. Offered Yearly.

**Prerequisites:** ADR 3070 and APA 4000

**Fees:** \$30

**Repeatable for 6 Credits**

**ADR 5070 Advanced Life Drawing Cr. 3**

Continued study of human figure based on observation. Composition. Expressive interpretation of the figure through broad range of media. Offered Fall, Winter.

**Prerequisites:** ADR 3070

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 6 Credits**

**ADR 5080 Landscape Drawing Cr. 3**

Drawing or painting, as appropriate, outdoors at a variety of urban, suburban, and rural sites in the metropolitan Detroit area; students are expected to drive or carpool to locations within an hour of Detroit. Interpretation of landscape subjects through observation and imagination. Offered Spring/Summer.

**Prerequisites:** ADR 1050

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$30

**Repeatable for 6 Credits**

**ADR 5090 Anatomy Cr. 3**

Superficial human anatomy including effects of muscular and skeletal systems. Drawing from both models and skeletons, lectures, demonstrations. Offered Yearly.

**Prerequisites:** ADR 2070

**Fees:** \$90

**ADR 5100 Contexts of Studio Practice Cr. 3**

Critical inquiry into art issues, past and present, and contemporary studio practices related to painting. Seminar based on visits to museums, galleries, private collections, artists' studios, and optional trips to major art centers such as New York and Chicago. Offered Yearly.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Equivalent:** APA 5100

**Repeatable for 6 Credits**

**ADR 5160 Advanced Alternative Drawing Methods and Materials Cr. 3**

Survey of contemporary and traditional materials and methods of paper making, paper casting, paper cutting and paper folding, as well as an introduction to book binding and altered books. New techniques will be incorporated into a personal body of work. Offered Yearly.

**Prerequisites:** ADR 2130

**Fees:** \$80

**Repeatable for 6 Credits**

**ADR 5800 Directed Projects: Drawing Cr. 3-6**

Individual work supervised by faculty on arranged basis. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 12 Credits**

**ADR 7060 Graduate Problems in Drawing and Painting Cr. 3-9**

Emphasis on self-directed projects with advice from faculty. May include lectures, demonstrations, and visits to off-campus sites. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$30

**Repeatable for 24 Credits**

**ADR 7070 Graduate Life Drawing Cr. 3**

Individual projects based upon study of the human figure. Broad range of media encouraged. Offered Fall, Winter.

**Prerequisites:** ADR 5070

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 9 Credits**

**ADR 7080 Landscape Drawing Cr. 3**

Drawing or painting, as appropriate, outdoors at a variety of urban, suburban and rural sites in the metropolitan Detroit area; students are expected to drive or carpool to locations within an hour of Detroit. Interpretation of landscape subjects through observation and imagination. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$30

**Repeatable for 15 Credits**

**ADR 8800 MFA Studio: Drawing Cr. 3-9**

Extended self-directed work in drawing (eighteen to twenty-seven hours per week). Consultation with appropriate graduate faculty on an arranged basis. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 36 Credits**

## ADX - Art and Design Exposure

**ADX 1020 Web Design and Interactive Art for Non-Art/Design Majors Cr. 3**

Introductory survey of methods for the production of web-based art and interactive web content for students, who are not majoring in a program within the Department of Art and Art History. Offered Every Term.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**ADX 1030 3D Modeling for Non-Art/Design Majors Cr. 3**

Introductory survey of methods in 3D Modeling and digital manufacturing techniques for students, who are not majoring in a program within the Department of Art and Art History. Offered Every Term.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**ADX 1060 Introduction to Jewelry and Metalsmithing for Non-Art/Design Majors Cr. 3**

Introduces jewelry and metalsmithing skills and techniques as well as the history of jewelry and metalsmithing, and contemporary practices. The course is intended for those interested in learning how to create jewelry-metal works but are not majoring in a program within the Department of Art and Art History. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$75

**Repeatable for 6 Credits**

**ADX 1100 Creative Inquiry Cr. 3**

Focuses on creative ideation processes that can be applied to the research and development of innovative projects across disciplines. Through readings, writings, analysis of prominent creative thinkers and artists, hands-on exercises, and critique students will critically analyze the creative process and the works it generates. Intended for students who are not majoring in a program within the Department of Art and Art History. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**ADX 1210 Introduction to Studio Art and Design for Non-Art/Design Majors Cr. 3**

Students will explore, through lecture and hands-on manipulation, the principles elements of visual communication, and introduce techniques and materials that are used to produce two-dimensional (Surface), three-dimensional (Space), and time-based (Time) works of art. The course is intended for students who are not majoring in a program within the Department of Art and Art History. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$35

**ADX 1400 Photography for Non-Art/Design Majors Cr. 3**

Introduces technical, artistic, and theoretical problems associated with photography. Through this class, students will learn how to use their camera as a tool for personal expression as well as analyze and critique photography's use in visual culture. The course will encompass lectures, demonstrations, readings and projects involving basic photographic techniques and image construction using a digital camera. It is intended for those interested in learning how to make and discuss photographs, but are not majoring in a program within the Department of Art and Art History. Offered Every Term.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**ADX 1420 Digital Imaging and Video for Non-Art/Design Majors Cr. 3**

Introductory survey of methods for the production of digital images and video editing and compositing techniques students, who are not majoring in a program within the Department of Art and Art History. Offered Every Term.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**ADX 3100 Design Thinking Cr. 3**

This course is intended for students from any discipline who require an understanding of design thinking for brand, product, and service development. Students will learn a series of design thinking concepts, methods and techniques that are used to bring about innovation in business and in the social sector. The intent is for students will develop creativity skills, along with the strategy skills needed to identify needs, generate and visualize ideas to meet those needs, and ultimately bring these ideas to market. Lectures, readings, and group discussion will be reinforced through collaborative and individual project-based design thinking activities. Offered Winter.

## AED - Art Education

**AED 5000 Introduction to Art Education Cr. 3**

Design of developmentally appropriate and comprehensive art experiences, teaching strategies, and authentic assessment of student learning in art. History, theories and philosophies of visual arts education; contemporary trends and issues. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

**Fees:** \$15



**AED 5020 Painting: Methods and Materials Cr. 3**

Methods, materials and processes suitable for teaching painting in the schools. Subject selection, composition, surface selection and preparation, mixing and application of paint, finishing, and presentation. Students develop basic skills in painting for personal artistic expression. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$15

**Repeatable for 9 Credits**

**AED 5050 Integrating the Arts into the Elementary Classroom Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Introductory course: integration of visual arts, music, dance, and theatre into the teaching, learning and curriculum of the elementary classroom. Offered Fall, Winter.

**Prerequisites:** (2 of (ELE 3300, ELE 6290, ELE 6390, ELE 6500, ELE 6600, ELE 3400, ELE 3500, or ELE 3600) and 1 of (ELE 3320 or ELE 6310)) or TED 5150

**Fees:** \$30

**AED 5070 Methods and Materials of Sculptural Expression Cr. 3**

Exploration of three-dimensional forms using various media; emphasis on sculptural concepts, materials, tools and techniques related to teaching sculpture on the elementary and secondary level. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$15

**AED 5100 Topics in Art Education Cr. 1-3**

Art experiences designed for the specific needs of special groups. Topics to be announced in Schedule of Classes. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$15

**AED 5150 Computer Graphics in the Classroom Cr. 3**

Introduction to digital media and the production of computer graphics by using drawing, painting, graphic design, animation, video and web techniques. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.

**AED 5160 Theory and Practice in Art Education Cr. 3**

Development and analysis of instructional objectives in art education; organization and management of art classrooms; teaching strategies and assessment practices. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.

**AED 5230 Ceramics Education I Cr. 3**

An overview of handbuilding processes, various firing procedures including blackware and raku, decorating, glazing and equipment maintenance. Emphasis placed on the educational benefits and procedures for working with people of various ages and the management of materials for teaching. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$25

**AED 5280 Printmaking: Methods and Materials Cr. 3**

Studio exploration of relief, planographic, intaglio, and stencil processes as methods of reproduction for artistic expression. Examination of tools, methods and processes suitable for the classroom. Includes study in lithography, dry point, etching, calligraphy, woodcut, linocut, and photo screen processes. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$15

**Repeatable for 9 Credits**

**AED 5650 Art Teaching Laboratory Cr. 3**

Laboratory experience in teaching art to elementary, middle, and high school students. Pre-student teaching experiences under close supervision of an experienced Visual Arts teacher. Offered Fall.

**Prerequisites:** AED 5100 with a minimum grade of D- (may be taken concurrently) and AED 5160 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students in the College of Education.

**AED 5690 Collage, Assemblage, and Multi-Media: Methods and Materials Cr. 3**

History and methods of creating collage, assemblage, and multi-media art works. Integration of developmental issues, use of personal meaning and experience for lesson planning, unit planning, and work assessment strategies. Offered Winter.

**Prerequisites:** (AH 1110, AH 1120, ADR 1050, and ADR 1060) or (ADR 2070, APA 2100, and ASL 2150)

**Fees:** \$40

**AED 5890 The Art of Indigenous Cultures: Inclusion in the K-12 Curriculum Cr. 3**

Focus on non-Western, indigenous art forms, such as Balinese architecture, ceramics of Papua New Guinea, Aboriginal painting, Precolumbian culture, and Japanese gardens; means of integrating this content into the K-12 Curriculum. Offered Winter, Spring/Summer.

**Prerequisites:** AH 1110 and AH 1120

**AED 6230 Ceramics Education II Cr. 3**

Emphasis is placed on throwing procedures, the use of various clay bodies, firing at various temperatures, making and using tools, ceramic history and its use and benefits in a school curriculum. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$35

**Repeatable for 9 Credits**

**AED 6920 Multi-Cultural Issues in Art Education Cr. 3**

Provides all visual arts education students with discipline-specific experiences, current theoretical perspectives, and best practices to enhance the effectiveness of their work in diverse and multicultural learning. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**AED 7700 Advanced Graduate Problems Cr. 3-12**

Pursuit of specific problems in depth. Laboratory hours coordinated with regularly scheduled classes in the selected area. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$15

**Repeatable for 12 Credits**

## AET - Alternative Energy Technology

**AET 5110 Fundamental Fuel Cell Systems Cr. 4**

Introduce various types of fuel cells, materials properties of electrodes and polymeric membranes, and electrochemical mechanisms. Reforming of various types of hydrocarbon fuel to hydrogen, and reforming technology. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** CHE 5110, EVE 5130, ME 5110

**AET 5120 Fundamentals of Alternative Energy Technology Cr. 3**

Provide an overview/review of thermodynamics. Cover advanced thermodynamics topics of energy and chemical reacting systems. Introduce general areas of alternative energy technology, engineering analysis and design of solar angle/time/radiation, solar heating, solar photovoltaic, and wind power. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.



**AET 5250 Alternative Energy Technology System and Design Cr. 4**

Topics such as: batteries, flywheels, capacitors, motors, controllers, power management, heat dissipation, systems containment, manufacturing processes, systems dynamics. Lectures and design projects. Offered Fall.

**Prerequisites:** AET 5120

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students; enrollment limited to students in the College of Engineering.

**AET 5310 Fundamentals of Battery Systems for Electric and Hybrid Vehicles Cr. 4**

Fundamental electrochemistry and engineering aspects for electric propulsion batteries, including lead acid, nickel metal hydride, and lithium ion technologies. Offered Intermittently.

**Equivalent:** CHE 5120, EVE 5120, ME 5215

**AET 5410 Energy, Emissions, Environment (E3) Design Cr. 3**

Provides students the tools to uncover the relation between energy consumption and energy generation and optimize processes to take most advantage of low emitting energy options. Exposes students to design tools and methodologies from a diverse group of sources including US EPA, DOE, EIA, and the latest in emerging research. Offered Fall.

**Equivalent:** CE 5410, STE 5410

**AET 5600 Integrated Product Development Cr. 3**

Product development process: product architectures, concurrent engineering. Integration of marketing, design, and manufacturing functions for product development. How such processes are designed to account for various manufacturing and other business constraints to ensure that customer needs are met. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** EVE 5600, IE 6405

**AET 5810 Power Management for Advanced Energy Storage Systems and its Applications Cr. 4**

Operating principles and modeling of energy storage techniques; control and power management, power electronic converters, electric machines, and power systems; power management strategies of hybrid energy systems including HEV and alternative energy systems. Offered Fall, Winter.

**Prerequisites:** ECE 4470

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** EVE 5810

**AET 7990 Directed Study Cr. 1-4**

Independent projects on subjects of interest in advanced energy technology. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**AET 7991 Internship in Industry Cr. 1-4**

Industrial internship in alternative energy technology. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AET 8996 Directed Research Cr. 1-4**

Independent research projects. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AET 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## AFA - Art: Design and Merchandising

**AFA 2420 Construction Methods I Cr. 3**

Introduction to garment construction including seams, seam finishes, and alterations. Offered Fall, Winter.

**Fees:** \$65

**AFA 3400 Clothing and Culture Cr. 3**

Functions and meanings of dress in diverse cultures and contemporary society with an interdisciplinary approach. Offered Fall.

**Fees:** \$35

**AFA 3420 Construction Methods II Cr. 3**

Advanced methods of garment construction and fitting techniques.

Development of skills in garment fit, shape, and finish techniques.

Introduction to flat pattern manipulation to create custom bespoke garments. Offered Fall.

**Prerequisites:** ADN 2410 and AFA 2420

**Fees:** \$65

**AFA 3460 Introduction to Merchandising Cr. 3**

Psychological, economic considerations. Terminology and structure of the fashion industry and career opportunities. Offered Fall, Winter.

**Fees:** \$35

**AFA 3470 Global Issues in Fashion Merchandising Cr. 3**

This course concentrates on industry issues in retail apparel. Discussions focus on product development, manufacturing, promotion, visual merchandising, special events marketing, sustainability, ethics and the general consumer lifestyle. Students understand contemporary issues in fashion and gain the experience and leadership skills necessary to make merchandising and marketing decisions through both competitive classes and guest lectures. Offered Winter.

**Fees:** \$35

**AFA 3480 Fashion Marketing Management Cr. 3**

This course focuses on the fundamental principles of marketing and management specific to the fashion industry. Offered Fall.

**Prerequisites:** AFA 3460

**Fees:** \$35

**AFA 4430 Fashion Illustration Cr. 3**

Basic fashion rendering techniques using a variety of media. Offered Every Other Year.

**Prerequisites:** ADR 1050

**Fees:** \$80

**Repeatable for 6 Credits**

**AFA 4450 Contemporary Fashion Theory Cr. 3**

Theories and approaches relevant to fashion design discourse including body, gender, and environment. This course is designed to develop students' research, reading comprehension, and writing skills, in addition to reinforcing vocabulary and exploring significant contemporary fashion theories in depth. Offered Winter.

**Fees:** \$50

**AFA 4660 Fashion Retail Management Cr. 3**

Fashion Retail Management focuses on the fundamental principles of retail and management specific to the fashion industry. Offered Winter.

**Prerequisites:** AFA 3460

**Fees:** \$35

**AFA 4990 Directed Study Cr. 2-4**

Offered Every Term.

**Repeatable for 4 Credits**

**AFA 5400 Digital Fashion Illustration Cr. 3**

This course builds upon techniques introduced in AFA 4430 and emphasizes digital illustration tools. Students will develop their own stylized croquis in-computer and learn to render garments on the body. Adobe Illustrator, Photoshop, and 3D modeling software will be used to accurately produce digital illustrations and render virtual garments. Digital illustration techniques will prioritize effective visual communication of garment designs. Offered Fall.

**Prerequisites:** AFA 4430

**Fees:** \$65

**AFA 5410 Fashion Entrepreneurship Cr. 3**

Provides students with the knowledge and skillset required to succeed in new and pivotal business environments. Discussions focus on innovation in the development of business models with specific concern for ethics and sustainability at all stages of a brand's evolution. Upon completion of this course, students will be prepared to construct creative ideas into business ventures and assume leadership positions in entrepreneurial companies. Offered Fall.

**Fees:** \$60

**AFA 5422 Fashion Design: Flat Pattern Cr. 3**

Original designs from a basic sloper. Offered Yearly.

**Prerequisites:** ADN 2410

**Fees:** \$65

**Repeatable for 9 Credits**

**AFA 5424 Fashion Design: CAD Cr. 3**

Use of computer-aided design software applied to apparel design concepts; garment designing, grading, and marker-making. Offered Fall.

**Fees:** \$65

**AFA 5442 Fashion Design: Draping Cr. 3**

Creation of original garments by draping on half-scale and standard-size dress forms. Offered Intermittently.

**Fees:** \$65

**Repeatable for 9 Credits**

**AFA 5460 Merchandising II Cr. 3**

Current trends in merchandising. Emphasis on global aspects. Offered Fall.

**Prerequisites:** AFA 3460

**Fees:** \$60

**AFA 5470 Visual Merchandising: Display Cr. 3**

Visual merchandising concepts and trends. Relationship of design elements and principles to the tools and structures used in display. Creative experimentation in the various media. Offered Winter.

**Prerequisites:** ACO 1200 or ACO 1230

**Fees:** \$65

**AFA 5472 Special Topics in Fashion Cr. 3**

Exploration of concepts and techniques related to fashion design. Topics may include sustainability, ethics, nontraditional materials, and wearable technologies. Offered Intermittently.

**Fees:** \$60

**Repeatable for 6 Credits**

**AFA 5480 Advanced Studio/Exhibition Cr. 3**

Development and display of a cohesive collection of design work in a culminating exhibition. Event planning and exhibition design including visual display and styling. Offered Yearly.

**Fees:** \$80

**Repeatable for 6 Credits**

**AFA 5490 Retail Math Cr. 3**

An overview of the merchandising principles and mathematics needed for retail planning, buying, and selling. Offered Winter.

**Prerequisites:** AFA 3460

**Fees:** \$35

**AFA 5992 Supervised Field Experience Cr. 3**

Supervised field experience designed to correlate classroom theory with practical work. Offered Fall.

**Fees:** \$35

**Repeatable for 6 Credits**

**AFA 5997 Seminar Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Contemporary issues in fashion design and merchandising including professional practices and portfolio development. Required readings, presentations, discussion, lectures, and visits from industry professionals. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$60

**AFA 7850 Seminar Cr. 3**

Development and practice of the research process and effective writing skills. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Bachelor of Arts, Bachelor of Science or Master of Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**AFA 7990 Directed Study Cr. 1-4**

Individual projects. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Bachelor of Arts, Bachelor of Science or Master of Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 8 Credits**

## AFI - Art: Fibers

**AFI 2650 Fibers: Material Fundamentals Cr. 3**

This course is an introduction to technical and conceptual ways of working in fibers/textiles. Students will explore a variety of fiber processes including off loom construction techniques, felting, weaving, and dyeing. Offered Every Term.

**Fees:** \$135

**AFI 2660 Introduction to Fabric Printing and Dyeing Cr. 3**

Emphasis on color, design, composition. Printing with found objects, stencil, silk screen resist method working with pigment and reactive dye. Offered Every Term.

**Fees:** \$110

**AFI 3640 Fibers: Digital Textile Design Cr. 3**

Explore textile design by researching current print and pattern trends in the apparel industry, gaining knowledge and inspiration. Develop innovative pattern collections using original artwork in Adobe Photoshop and Illustrator. Access to the most recent version of Adobe Photoshop and Illustrator is required for this class. Offered Every Term.

**Fees:** \$92

**Repeatable for 6 Credits**

**AFI 3650 Fibers: Weaving Cr. 3**

This course explores fabric weaving using simple weave patterns with various threading techniques and investigates the interaction between different fibers woven together. Offered Every Term.

**Fees:** \$135

**AFI 3660 Fibers: Print and Dye Cr. 3**

This class introduces surface design processes on fabric with emphasis on color, design, and composition utilizing both analog and digital processes. A basic knowledge of various dyeing and resist techniques will be covered using synthetic and natural dyes. Offered Every Term.

**Fees:** \$110

**AFI 4650 Fibers: Studio I Cr. 3**

This course expands students' technical, creative, and critical abilities in Fibers by utilizing traditional techniques with contemporary technology and research. Rotating semester topics include advanced dyeing, screen-printing, layer weaving, Shibori, Ikat, rug tufting, computerized pattern drafting/development, jacquard weaving, crochet, felting, soft sculpture, coiling, and other fiber art techniques. Offered Every Term.

**Fees:** \$120

**Repeatable for 6 Credits**

**AFI 5650 Fibers: Studio II Cr. 3**

This course is an individualized exploration of fiber related techniques, materials, and concepts. Conceptual development and independent research are expected. Offered Every Term.

**Prerequisites:** AFI 4650

**Fees:** \$135

**Repeatable for 6 Credits**

**AFI 5660 Fabric Printing and Dyeing: Senior Project Cr. 3**

Extensive project or series of works determined by student; research and written statement. Offered Every Term.

**Prerequisites:** AFI 3660

**Fees:** \$110

**Repeatable for 6 Credits**

**AFI 5870 Directed Projects: Fibers Cr. 3-6**

Individual problems. Offered Fall, Winter.

**Repeatable for 12 Credits**

**AFI 7650 Graduate Problems in Weaving Cr. 3**

Advanced problems in weaving. Offered Every Term.

**Prerequisites:** AFI 5650

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees.

**Fees:** \$40

**Repeatable for 9 Credits**

**AFI 7660 Graduate Problems: Fabric Printing and Dyeing Cr. 3**

Individual problems in fibers. Offered Every Term.

**Prerequisites:** AFI 5660

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees.

**Fees:** \$40

**Repeatable for 9 Credits**

**AFI 8860 MFA Studio: Fibers Cr. 3-9**

Supervised creative work done in the major concentration. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Art; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree.

**Fees:** \$40

**Repeatable for 36 Credits**

# AFS - African American Studies

**AFS 1010 Introduction to African American Studies Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry

An interdisciplinary approach to exploring several broad issues, topics, theories, concepts and perspectives which describe and explain the experiences of persons of African descent in America, the Continent, and the diaspora. Offered Every Term.

**AFS 2010 African American Culture Cr. 4**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Diversity Equity Incl Inquiry

Examination of the historical, traditional and aesthetic bases of a variety of cultural forms -- language, literature, music -- of the Black experience. Offered Every Term.

**AFS 2210 Black Social and Political Thought Cr. 4**

**Satisfies General Education Requirement:** Civic Literacy, Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

Survey of the Black intellectual and political tradition from the United States, the Caribbean and Africa. Offered Every Term.

**AFS 2245 Blacks and Sport in the United States Cr. 3**

The intersection between race and sport in the United States, examined to better understand the role of sports in our socialization and cultural construction. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** SOC 2245

**AFS 2250 AfroLatino/a History and Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry

Interdisciplinary introduction to the history and culture of AfroLatinos/as in the U.S. from the perspective of the African Diaspora in the Americas. Offered Winter.

**Equivalent:** LAS 2250

**AFS 2350 Black Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

Explores the historical, cultural and structural aspects of the Black urban experience in Detroit from the late 19th Century to the present, including the role that racism, urbanization and suburbanization have played in shaping racial, spatial and economic inequality in the Detroit Metropolitan area. Utilizes an interdisciplinary approach: to interrogate the social and cultural history of Black Detroit, to examine the various forms of Black social movement activism used by Black Detroiters in the 20th Century, and to analyze ways the shifting economic and political currents shaped, and reshaped racism, class, space, and resistance in the Detroit metropolitan area. Offered Fall, Winter.

**Equivalent:** HIS 2350, US 2350

**AFS 2390 Introduction to African-American Literature: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Intermediate Comp Pre-2018, Intermediate Comp Post-2018

Introduction to major themes and some major writers of African-American literature, emphasizing modern works. Reading and writing about representative poetry, fiction, essays, and plays. Offered Every Term.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**Equivalent:** ENG 2390

**AFS 2600 Race and Racism in America Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Examination of the nature and practice of racism in American society from its historical foundations to its contemporary institutional forms. Offered Every Other Year.

**Equivalent:** SOC 2600

**AFS 3140 African American History I: 1400-1865 Cr. 3-4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
African origins of African Americans; transition from freedom to slavery; status of African Americans under slavery. Offered Yearly.

**Equivalent:** HIS 3140

**AFS 3150 African American History II: 1865-1968 Cr. 3-4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
African American history from Reconstruction through the Civil Rights Movement. Offered Yearly.

**Equivalent:** HIS 3150

**AFS 3155 African American History III: 1968 - Present Cr. 3-4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
History of African Americans' struggle against persistent and stubborn racism, efforts to achieve full citizenship, and legal and economic justice after 1968. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** HIS 3155

**AFS 3160 Black Urban History Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Historical experience of African Americans in urban areas; impact of their communities on urban development from 1860 to contemporary times. Offered Fall, Winter.

**Equivalent:** HIS 3160

**AFS 3170 Ethnicity and Race in American Life Cr. 3-4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Exploration of complicated relationship between ethnic and racial diversity and the making of America. Using historical, literary, and cultural readings and sources to examine key themes: Who was the "Other"? What is an "American"? Offered Yearly.

**Equivalent:** HIS 3170

**AFS 3180 Black Social Movements Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Survey of mass or popular Black movements with emphasis on their political and cultural impact, historical continuity and organization. Offered Yearly.

**Equivalent:** HIS 3180

**AFS 3190 Race, Policing, and Warfare Cr. 3**

On May 30, 2020, as cities around the U.S. faced major upheaval following George Floyd's killing by Minneapolis police officers, the Minneapolis Department of Public Safety tweeted that law enforcement and National Guard troops were mobilizing against the protesters in order to "address a sophisticated network of urban warfare." While the protests were largely peaceful, the vocabulary of urban warfare signified a relationship between police and war. The deaths of George Floyd and countless other African Americans, the emergent Movement for Black Lives, and the "urban" in urban warfare indicates how race animates militarized policing. This class explores the racial history of policing through the lens of war. Offered Yearly.

**AFS 3200 The African-American Film Experience Cr. 4**

Historical and contemporary portrayals of African American people in narrative and documentary film. Emphasis on filmic approaches to race relations, cinematic elaboration of racial stereotypes, and legitimization functions of film. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** COM 3230

**AFS 3250 Politics and Culture in Anglophone Caribbean Cr. 3**

**Satisfies General Education Requirement:** Civic Literacy, Foreign Culture, Global Learning Inquiry

Survey of political, economic and cultural life of the Caribbean.

Relationship of the Caribbean to U.S. and world political and cultural developments. Interdisciplinary approach: historical, comparative, thematic issues. Offered Yearly.

**AFS 3300 Black Women Writers Cr. 3**

Students will explore the writings of Black women across a broad range of genres, which may include poetry, short stories, drama, essays, and novels. Offered Intermittently.

**Equivalent:** GSW 3300

**AFS 3360 Black Workers in American History Cr. 4**

**Satisfies General Education Requirement:** Social Inquiry

Survey course. Slave and free workers during antebellum period; skill trades, sharecropping, menial labor, and coal mining during Reconstruction; labor struggles and job discrimination in the twentieth century. Offered Fall, Winter.

**Equivalent:** HIS 3360

**AFS 3420 Pan Africanism: Politics of the Black Diaspora Cr. 4**

**Satisfies General Education Requirement:** Global Learning Inquiry  
Interplay of Pan Africanism as a cultural and socio-political movement in world politics from its origins as a concept to organizing practice worldwide. Offered Yearly.

**Equivalent:** PS 3820

**AFS 3430 Race, Revolution, and Counterrevolution Cr. 3**

This course will examine theories of revolutionary struggle and attempts at counterrevolution with an emphasis on the race question. In doing so, we will endeavor to understand why revolutions transpire when they do, along with exploring the strategies that different movements historically used to achieve revolution. Our class will highlight Black, Indigenous, and Third World liberation struggles and perspectives on revolution. We will begin the term by addressing theories of race, empire, and revolution. This theoretical foundation will allow students to contemplate how racial oppression might factor into the emergence of nationalist resistance. Our class will also explore how states and empires aim to subvert revolutions. By semester's end, students should be able to identify both the theoretical principals that generally apply to revolutionary struggles and the contextual particularities which animated various historical revolutions. Offered Yearly.

**AFS 3500 Special Topics: Literacy, Race, and Urban Society Cr. 3**

Specialized and topical studies in historical events, personalities and themes. Topics to be announced in the schedule of classes. Offered Intermittently.

**Repeatable for 9 Credits**

**AFS 3610 Interdisciplinary Perspectives on Foreign Culture: The Africans Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Humanistic aspects, history, socio-cultural institutions of African cultures; theory and methods, comparativist perspectives. Offered Yearly.

**AFS 3750 African American Art Cr. 3**

Historical inquiry of African American art from the eighteenth century to today. Offered Yearly.

**Equivalent:** AH 3750



**AFS 3800 Hip-Hop History and Culture Cr. 3**

We will also consider how hip-hop culture arose out of Black and Latinx responses to economic crisis, urban decline, and political repression before the music industry eventually turned artists into laborers and the music into a commodity. We will also consider the intersections between hip hop, local and regional cultures, other genres of music and cultural production, technology, politics, and business. Lastly, and most importantly, this class delves into the internal politics of those who participated in culture, especially regarding issues of gender and sexism, homo- and trans-phobia, and violence. Offered Yearly.

**AFS 4100 Research Methods in African American Studies Cr. 4**

An introduction to interdisciplinary research methods as they are applied to the study of black communities which examines theoretical and conceptual issues; techniques for identifying existing research; and sources and methods of social research and data collection. Offered Yearly.

**Prerequisite:** AFS 1010 with a minimum grade of D-

**AFS 4240 African Americans in Television Cr. 4**

Historical overview of African Americans in radio and television with emphasis on three areas of study: news and documentary; entertainment and advertising; and ownership, employment and access. Offered Yearly.

**Equivalent:** COM 4240

**AFS 5030 African American Politics Cr. 4**

Nature and texture of black politics; various perspectives on politics by blacks; the impact of blacks on American politics. Offered Every Other Year.

**Equivalent:** PS 5030

**AFS 5050 Topics in African American Cinema Cr. 4**

Analysis of a specific film genre, a director, an actor, or other historical aspect of African American films. Offered Yearly.

**Prerequisite:** AFS 3200 with a minimum grade of C- or COM 3230 with a minimum grade of C-

**Repeatable for 8 Credits**

**AFS 5110 Black Women in America Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Social, cultural, artistic and economic development of Black women in America; topics include: racism, sexism, marriage, motherhood, feminism, and the welfare system. Offered Yearly.

**Equivalent:** GSW 5110

**AFS 5220 Black Dramatic Literature and Performance Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry Critical study of significant Black dramatists of the American stage: Willis Richardson, Marita Bonner, Randolph Edmonds, Langston Hughes, Alice Childress, Lorraine Hansberry, Ed Bullins, Amiri Baraka, Ntozake Shange, and August Wilson. Offered Yearly.

**Fees:** \$10

**Equivalent:** THR 5821

**AFS 5261 African Americans, History and Memory Cr. 3**

An examination of the ways different groups and institutions remember and forget African American history. Each term the course will have a specific focus that will be advertised in advance. Offered Fall.

**Equivalent:** HIS 5261

**Repeatable for 6 Credits**

**AFS 5310 Special Topics in African American Studies Cr. 3-4**

Topics to be announced in Schedule of Classes; topics may include: Caribbean politics, African development, male-female relationships, Negritude. Offered Every Term.

**Repeatable for 12 Credits**

**AFS 5570 Race Relations in Urban Society Cr. 3**

Theoretical orientations applied analytically to enhance an understanding of the patterned structures of privilege in society which are based on race. Inequality, segregation-desegregation, pluralism; social structural frameworks; some attention to social-psychological aspects of topics such as prejudice and racism. Offered Intermittently.

**Equivalent:** SOC 5570

**AFS 5580 Law and the African American Experience Cr. 4**

In-depth examination of the African American experience with law in the U.S.; historical development of the U.S. Constitution; legal barriers to equality and the influence of race on the law; use of law as a political instrument; participation of Blacks in the legal process; comparisons with other countries. Offered Every Other Year.

**Equivalent:** SOC 5580

**AFS 5700 The Psychology of African Americans Cr. 4**

Methodological approaches to and theories of Black behavior and personality development. Topics include: race and pathology, life-span and psycho-sexual development, personality formation, social and environmental stress and adaptation. Offered Every Term.

**Equivalent:** PSY 5700

**AFS 5991 Field Work in the Black Community Cr. 3-8**

Field placement in community-based, human services, and civic organizations and governmental agencies. Offered for undergraduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Africana Studies; enrollment is limited to Undergraduate level students; enrollment limited to students in a Bachelor of Arts degree.

**AFS 5993 Writing Intensive Course in African American Studies Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplined writing assignments under the direction of a faculty member. Must be selected in conjunction with a designated corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for African American Studies majors. Offered Every Term.

**Prerequisite:** AFS 3160 (may be taken concurrently) with a minimum grade of C- or AFS 3180 (may be taken concurrently) with a minimum grade of C- or AFS 3200 (may be taken concurrently) with a minimum grade of C- or AFS 3250 (may be taken concurrently) with a minimum grade of C- or AFS 3420 (may be taken concurrently) with a minimum grade of C- or AFS 3610 (may be taken concurrently) with a minimum grade of C- or AFS 5110 (may be taken concurrently) with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in African American Studies; enrollment is limited to Undergraduate level students.

**AFS 6170 Studies in Ethnicity and Race in American Life Cr. 3-4**

Exploration of complicated relationship between ethnic and racial diversity and the making of America. Using historical, literary, and cultural readings and sources to examine key themes: Who was the "Other"? What is an "American"? Offered Every Other Year.

**Equivalent:** HIS 6170

**AFS 6990 Directed Study Cr. 3-8**

Reading and research projects. Offered Yearly.

## AGD - Art: Graphic Design

**AGD 2230 Introduction to Typography: Skills and Concepts Cr. 3**

Introduction to typography through the use of digital and hand craft skills and conceptual framing for working with letter forms and the layout of text. Assignments and demonstrations to develop thinking and making abilities. Offered Fall, Winter.

**Fees:** \$90



**AGD 2240 Introduction to Graphic Design: Skills and Concepts Cr. 3**

Introduction to graphic design skills (digital and analog) and concepts necessary for working with images and type. Assignments and demonstrations will develop design thinking and creative abilities. Offered Fall, Winter.

**Fees:** \$90

**AGD 2250 Typography Cr. 3**

Fundamental understanding of structure, history, technology and application of typography, the visualization of language. Functional and experimental aspects of typography; typographic syntax and hierarchies. Offered Fall, Winter.

**Prerequisites:** (ACO 1200, ACO 1230, or ACO 1270), AGD 2230, and AGD 2240 (may be taken concurrently)

**Fees:** \$90

**AGD 3220 Introduction to Motion Graphics Cr. 3**

This course is a basic motion design course aimed at Graphic Design majors. Students will learn different approaches to animation with the goal of refined movement to tell stories and deliver messaging while maintaining a highly designed approach. Students can apply skills learned in this class to other design and animation classes and vice versa. Throughout the semester, students will produce several mini motion projects. Adobe After Effects will be the primary editing software used in the course. Offered Yearly.

**AGD 3250 Graphic Design I: Principles and Problem Solving Cr. 3**

Visual communication issues and applications: design methodology, problem-solving, relation of form to meaning, type/image relationships. Offered Fall, Winter.

**Prerequisites:** AGD 2230 (may be taken concurrently), AGD 2240, and (ACO 1200, ACO 1230, or ACO 1270)

**Fees:** \$90

**AGD 3260 Introduction to Interactivity in Graphic Arts Cr. 3**

Exploration of a variety of art-making strategies that utilize digital technologies and interactive media; emphasis on computer-based and online art practices and web-oriented programming languages. Offered Yearly.

**Prerequisites:** ACO 1200, ACO 1230, ACO 1270, or APH 2400

**Fees:** \$145

**Equivalent:** ADA 3220

**AGD 3270 Introduction to Illustration Cr. 3**

Introduction to the role that illustration plays within graphic design; students will use both traditional and digital media to create illustrations and hand lettering to communicate messages intended for reproduction. Offered Yearly.

**Fees:** \$90

**AGD 3700 History of Graphic Design Cr. 3**

History of the discipline of graphic design from its early practices to the present, with an emphasis on technological and theoretical advances that took place during the twentieth century. Offered Yearly.

**Prerequisites:** AGD 2230 and AGD 2240

**Fees:** \$50

**AGD 4250 Graphic Design II: Word, Image, and Visual Organization Cr. 3**

Students apply knowledge of typography and visual design principles to specific design situations; emphasis on use of grid systems. Offered Yearly.

**Prerequisites:** AGD 2230, AGD 2240, AGD 2250, AGD 3250, and 2 of (ACO 1200, ACO 1230, or ACO 1270)

**Fees:** \$90

**AGD 4260 Professional Practice Cr. 3**

Preparation for working professionally as a graphic designer including portfolio and resume development, working with clients, budgets, and schedules. Offered Yearly.

**Prerequisites:** AGD 2240, AGD 3250, and AGD 4250

**Fees:** \$55

**AGD 4270 Intermediate Illustration Cr. 3**

Development of illustration skills; students will learn to effectively use both traditional and digital media to create illustrations and hand lettering to communicate messages intended for reproduction. Students engage in problems that demand research, creation and management of numerous visual and informational elements within a given visual product. Offered Yearly.

**Prerequisite:** AGD 3270

**Fees:** \$90

**AGD 5250 Graphic Design III: Complexity and Variety in Design Cr. 3**

Complex design situations. Research and methodology. Project may include package design, instruction manuals, book and brochure design, publication design. Offered Fall, Winter.

**Prerequisites:** AGD 2240, AGD 2250, AGD 3250, and AGD 4250

**Fees:** \$90

**AGD 5260 Senior Seminar Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Issues affecting the theory, history, and practice of design; impact of design on society and impact of society on design. Required readings, student presentations, class discussion, slide lectures, guest speakers. Satisfies the General Education Writing Intensive Course in the Major requirement. Offered Winter.

**Prerequisites:** 2 of (ACO 1200, ACO 1230, or ACO 1270), AGD 2230, AGD 2240, AGD 2250, AGD 3250, and AGD 4250

**Fees:** \$50

**AGD 5700 Special Topics Cr. 3**

Examination of specific issue in design theory, history or practice. Topics may include: corporate identity, globalization of design, exhibition design, design history. Offered Every Term.

**Prerequisites:** AGD 3250 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 15 Credits**

**AGD 5740 Interactivity Cr. 3**

Theory and practice of digital user experience design. Includes prototyping and some programming for the design of websites, apps, and digital media. Builds on foundational interactive, typography and graphic design skills. Offered Yearly.

**Prerequisites:** AGD 2230, AGD 2240, AGD 2250, AGD 3250, AGD 3260, or AGD 4250

**Fees:** \$90

**AGD 5750 Information Design Cr. 3**

Theory and practice of user-centered design to help people find, understand, and use information. Includes the visualization of information for such things as instructions, maps, forms, diagrams, and digital media. Offered Yearly.

**Prerequisites:** AGD 2230, AGD 2240, AGD 2250, AGD 3250, or AGD 4250

**Fees:** \$90

**AGD 5890 Directed Projects: Graphic Design Cr. 3-6**

Individual problems. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 12 Credits**

**AGD 5990 Field Study: Internship Cr. 3**

Supervised field experience designated to correlate classroom theory with practical work. Offered Every Term.

**Prerequisites:** AGD 3250 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students in a Bachelor of Arts or Bachelor of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$30

**Repeatable for 6 Credits**

**AGD 5997 Senior Studio Cr. 3**

Extended student projects such as identity systems with various applications, families of package design, series of form design, or poster series. Possible collaborative projects; extensive research. Offered Fall, Winter.

**Prerequisites:** AGD 2230, AGD 2240, AGD 2250, AGD 3250, AGD 4250, 2 of (ACO 1200, ACO 1230, or ACO 1270), and 2 of (AGD 3000-6999 or AGD 3000-6999)

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**AGD 6260 Advanced Typography Cr. 3**

Advanced and experimental typography; typography as an expressive language in 2-D and 3-D; projects in information design. Offered Intermittently.

**Prerequisites:** AGD 2250 and AGD 4250

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**AGD 7250 Graduate Problems in Graphic Design Cr. 3-9**

Individual problems in advanced advertising design. Offered Fall, Winter.

**Prerequisites:** AGD 5250 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree.

**Fees:** \$90

**Repeatable for 24 Credits**

## AH - Art History

**AH 1000 Introduction to Art Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

An introductory survey of art and culture designed to equip students to look purposefully, critically, and contextually at images and events, mindful of the ways that meaning is produced and perceived. Offered Every Term.

**AH 1110 Survey of Art History: Ancient through Medieval Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Survey of traditions and major developments in visual expression in the West, prehistory through Medieval period. Art studied in context of its cultures; techniques of visual analysis. Offered for four credits only to Honors students. Offered Every Term.

**AH 1120 Survey of Art History: Renaissance through Modern Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Traditions and developments in visual expression in the West, Renaissance through twentieth century. Art in context of its cultures; techniques of visual analysis. Offered for four credits only to Honors students. Offered Every Term.

**AH 1130 Encounters with the Arts of Global Africa Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Visual Performing Arts

Introductory survey of the arts of Africa and the African Diaspora, focusing on the visual culture of cross-cultural contact within Africa and beyond. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**AH 3070 Art and Archeology of Ancient Egypt Cr. 3**

An introduction to the history and development of Egyptian artistic style in architecture, sculpture, painting and the applied arts; historical, social and religious background. Offered Intermittently.

**AH 3150 The Arts of Africa: Local and Global Visions Cr. 3**

Traditional, modern and contemporary arts of Africa, as well as the impact of African culture on the Americas. Emphasis on global politics of intercultural contact between Africa and the West. Offered Fall.

**Prerequisites:** AH 1110 and AH 1120

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**AH 3240 Mythology in Greek Art Cr. 3**

The myths of the Greeks as they appeared on painted vases, and the strategies of visual storytelling employed. Offered Intermittently.

**AH 3410 Medieval Art and Architecture Cr. 3**

Monasticism as a driving force in medieval culture; art and architecture produced by and for Christian religious communities, A.D. 300-1400. Offered Intermittently.

**Prerequisites:** AH 1110

**AH 3470 Islamic Art and Architecture Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry  
Survey of art and architecture of Islam from its origins in the seventh century to the Ottoman Empire. Offered Intermittently.

**AH 3560 Special Topics Cr. 3**

Students examine specific issues related to art history. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 12 Credits**

**AH 3650 Nineteenth-Century European Art and Architecture Cr. 3**

Introduction to European art and architecture from 1780 to 1900; survey of major developments in 19th century painting, sculpture, printmaking and photography. Offered Fall, Winter.

**AH 3700 Contemporary Art Cr. 3**

Introduction for studio art majors: ideas and styles of modern art. The gap between those who make art and those who write about it. Access to the discipline of art history through tracing the origins of a variety of contemporary art practices. Offered Yearly.

**Prerequisites:** AH 1000-1999

**AH 3750 African American Art Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Historical inquiry of African American art from the eighteenth century to today. Offered Yearly.

**Equivalent:** AFS 3750

**AH 3760 Art of the African Diaspora Cr. 3**

Examines art of the African Diaspora and how this history of dissemination affected art making in various geographical, cultural, and sociopolitical paradigms. Offered Fall.

**AH 5210 Hellenistic Art Cr. 3**

Sculpture, painting and architecture of the Greek world from Alexander the Great to Cleopatra. Offered Intermittently.

**Prerequisites:** AH 1110 and AH 1120

**AH 5250 Ancient Rome Cr. 3**

Development of Rome into an imperial capital. Design, function and political significance of public monuments in the city. Offered Intermittently.

**Prerequisites:** AH 1110 and AH 1120

**AH 5260 Classical Greek Art Cr. 3**

Greek painting, sculpture and architecture of the fifth and fourth centuries B.C. Emphasis on decorative programs of temples and cult statues. Offered Intermittently.

**Prerequisites:** AH 1110 and AH 1120

**AH 5270 Roman Painting and Sculpture Cr. 3**

Painting and sculpture of the Roman Republic and Empire, and their cultural context. Offered Yearly.

**Prerequisites:** AH 1110 and AH 1120

**AH 5310 The Ancient City of Athens Cr. 3**

The history of Athens as an urban center in antiquity. Public monuments, buildings and landscape as reflecting the city's aspirations and fortunes. Offered Intermittently.

**Prerequisites:** AH 1110 and AH 1120

**AH 5450 Art and Architecture in the High Middle Ages Cr. 3**

Art and architecture in western Europe, 1050-1250. Development of Romanesque and Gothic styles in architecture, painting, and sculpture. Offered Intermittently.

**Prerequisites:** AH 1110 and AH 1120

**AH 5500 Early Renaissance in Italy Cr. 3**

Art and architecture from Giotto to Botticelli; transformation of late medieval art prior to Black Death, classical revival in Florence; North Italian artists such as the Bellinis and Mantegna. Offered Every Other Year.

**Prerequisites:** AH 1110 and AH 1120

**AH 5510 High Renaissance and Mannerism in Italy Cr. 3**

The art of Leonardo, Raphael, Michelangelo, Titian, and their contemporaries. Offered Intermittently.

**Prerequisites:** AH 1110 and AH 1120

**AH 5520 Art of Renaissance Venice Cr. 3**

Art of fifteenth and sixteenth century Venice considered in its socio-political milieu. Offered Every Other Year.

**Prerequisites:** AH 1110 and AH 1120

**AH 5540 Art of the 1960s Cr. 3**

This course examines the art created by artists of color who were typically marginalized by the American art world during this historical moment. First, we will consider the artistic tendencies of the mainstream artworld, and then delve into the creative and political pursuits of non-white artists of this time period. One of the principle aims of this course is to consider the political, social, and cultural context that impacted the creation of their art as well as the ways in which the creative endeavors of these artists of color intersected with the goals of movements like the Black Power Movement, the Chicano Movement, and the Women's Liberation Movement. Offered Every Other Year.

**Prerequisites:** AH 3700, AH 3750, or AH 3760

**AH 5545 Black Women in Contemporary Art Cr. 3**

This course will explore contemporary visual and performance art created by women of the Black Diaspora. Critical race, gender, sexuality and multiculturalism theory will be utilized to strengthen the visual analysis of artworks. For the duration of the semester, students will examine artists who defined art of the 1960s and 1970s, as well as art reflective of the multiculturalism and identity politics of the 1980s and the early 1990s and will then consider the audacious yet ambitious art of the post-black era. This course embraces the subjectivities of cisgendered and transgendered people of the feminine experience, femmes, and nonbinary people. Keeping intersectionality in mind, this course also considers Black women artists who confront gender inequality, classism, homophobia, transphobia, and systemic racism. Offered Fall.

**Prerequisites:** AH 3700

**AH 5560 Special Topics Cr. 3**

Students examine specific issues related to art history. Offered for undergraduate credit only. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 12 Credits**

**AH 5570 Performance Art of the Americas Cr. 3**

Explores Performance Art created in North, Central, and South America, as well as in the Caribbean. Performance Art is a Western visual art movement in which the artist's body is the primary medium of expression, and this art form's evolution will be examined from the late nineteenth to the twenty-first centuries. Offered Fall.

**AH 5695 Art of Revolutionary Europe Cr. 3**

This course explores European paintings, prints, photography, fashion, architecture and interior design from 1789-1851, including the art of David, Delacroix, Turner, Friedrich, Goya, and Courbet and the styles of Neoclassicism, Romanticism, the Regency, Napoleon, and Realism. Offered Every Other Year.

**AH 5705 Impressionism and Post-Impressionism Cr. 3**

This course explores French Impressionism and Post-Impressionism in the context of social and technological change, fashion, the growth of Paris, the birth of the suburbs, and questions of gender, race, sexuality, and the environment. Artists include Manet, Monet, Cassatt, Cézanne, Van Gogh, and many others. Offered Intermittently.

**AH 5710 Trends in Nineteenth Century Art Cr. 3**

Topics to be announced in Schedule of Classes. Offered Every Other Year.

**Prerequisites:** AH 1110 and AH 1120

**AH 5715 Modernism: Nineteenth and Twentieth Centuries Cr. 3**

Origins of Modernism in the mid-nineteenth century; avant-garde art in Europe and the U.S. from 1850 to 1950; theories of Modernism in the visual arts. Offered Every Other Year.

**Prerequisites:** AH 1110 and AH 1120

**AH 5720 Twentieth Century Art Cr. 3**

European and American paintings, sculpture, and new media surveyed from 1900 to present. Offered Every Other Year.

**Prerequisites:** AH 1110 and AH 1120

**AH 5735 Art 1900-1945 Cr. 3**

European and American avant-garde art, Dada and Surrealism, the interwar period, and Abstract Expressionism. Offered Every Other Year.

**Prerequisites:** AH 1110 and AH 1120

**AH 5755 Gender and Race in Visual Culture Cr. 3**

This course will interrogate the ways in which gendered and racialized bodies are epitomized in the myriad of form that comprise visual culture. Offered Fall.

**AH 5780 Topics in Twentieth-Century Art Cr. 3**

Topics to be announced in Schedule of Classes. Offered Yearly.

**Prerequisites:** AH 1110 and AH 1120

**Repeatable for 12 Credits**

**AH 5855 Museum Practicum Cr. 3**

Cooperative arrangement between the art history program and the Detroit Institute of Arts, in which the student applies art historical training to a current project or exhibition in the museum. Offered Every Other Year.

**Prerequisites:** AH 1110 and AH 1120

**AH 5990 Directed Study Cr. 1-3**

Supervised advanced reading and research in the history of art. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in a Bachelor of Arts or Master of Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 6 Credits**

**AH 5997 Seminar Cr. 3**

Readings, discussion, and research paper on special topics in art history; topics to be announced in Schedule of Classes. Graduate students undertake research paper in addition to other assignments. Offered Yearly.

**Prerequisites:** AH 1110 and AH 1120

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 9 Credits**

**AH 5998 Honors Thesis Cr. 3**

Students write a substantial research paper on subject determined by the student in collaboration with his/her professor. Offered for undergraduate credit only. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Art History Honors; enrollment is limited to Undergraduate level students.

**AH 7200 Seminar in Greek and Roman Art Cr. 3-6**

Topics to be announced in Schedule of Classes . Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 9 Credits**

**AH 7500 Seminar in Renaissance Art Cr. 3-6**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Art History; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree.

**Repeatable for 9 Credits**

**AH 7700 Seminar in Modern Art Cr. 3**

Topics to be announced in Schedule of Classes . Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 6 Credits**

**AH 7999 Master's Essay Direction Cr. 1-3**

Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major in Art History; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree.

**AH 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major in Art History; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree.

**Repeatable for 8 Credits**

# AHS - Applied Health Sciences

**AHS 2010 Introduction to Applied Health Sciences Cr. 3**

Introduction to Applied Health Sciences is designed to familiarize students with the various careers in the medical professions. Students will learn skills necessary for their healthcare career pathway including working with others, communication skills, legal and ethical responsibilities, cultural considerations in the healthcare industry, problem solving, decision making, accepting personal responsibility and self-management. Offered Fall.

**AHS 2020 Applied Health Sciences Communication Cr. 3**

The purpose of Applied Health Sciences Communication is to provide the student with an overview of health and science communication in research, industry, and practice. Each student will have an opportunity to explore and better understand the role communication plays in health care delivery, health promotion, disease prevention, environmental and risk communication, media and mass communication, and technology. Offered Fall.

**Prerequisite:** COM 1010 with a minimum grade of C and ENG 1020 with a minimum grade of C and MLS 3330 with a minimum grade of C

**AHS 2030 Advanced Statistics for Applied Health Sciences Cr. 4**

The purpose of Advanced Statistics for Applied Health Sciences is to prepare students entering a career in a healthcare profession for common statistical tools used in health care fields. This course contains content areas of descriptive statistics, probability, inferential statistics, and linear regression with relevance to health care professions. A substantial number of human health examples are included to demonstrate the relevance of statistics to health and disease. Offered Fall.

**Prerequisite:** STA 1020 with a minimum grade of C

**AHS 3010 Advanced Applied Health Sciences Professions Cr. 3**

The purpose of Advanced Applied Health Sciences Professions is to assist students who are considering a career in a graduate health sciences profession. Students will examine the roles of a health sciences professional in clinical, academic, and research settings, expectations of professional behavior within the profession, and professional development. The current practice of the health sciences profession in various settings will be explored. Students will need to select the appropriate course section for their preferred health sciences profession. Offered Winter.

**Prerequisite:** AHS 2010 with a minimum grade of C

**AHS 3020 Diversity in Applied Health Sciences Cr. 3**

The purpose of Diversity in Applied Health Sciences is to explore the intersection of health care and marginalized cultures, races, ethnicities, and gender identities. Students will explore how power dynamics, attitudes, biases, and cultural misunderstanding have produced health disparities while also engaging in activities to understand and mitigate ongoing injustices. Offered Fall.

**Prerequisite:** ENG 1020 with a minimum grade of C

**AHS 3030 Human Physiology for Applied Health Sciences Cr. 3**

The purpose of Human Physiology for Applied Health Sciences is the study the functioning of human tissues and organ and organ systems. Emphasis will be given to the physical, chemical and mechanistic bases of normal physiology and the integrated functions of the human body. The course also introduces pathophysiological changes associated with some human diseases. Offered Winter.

**Prerequisite:** BIO 2870 with a minimum grade of C



**AHS 4010 Interprofessional Education in Applied Health Sciences Cr. 3**

The purpose of Interprofessional Education in Applied Health Sciences is to introduce students to interprofessional health care delivery in multiple practice settings. Best practices are emphasized for team formation, effective communication strategies, and patient care processes. Ethical issues related to team management in health care are discussed. Offered Winter.

**Prerequisite:** AHS 2010 with a minimum grade of C

**AHS 4020 Pathophysiology for Applied Health Sciences Cr. 3**

The course Pathophysiology for Applied Health Sciences will focus on advanced pathophysiologic concepts affecting the adult human using a research-based, system-focused approach, including etiology, pathogenesis and clinical manifestations of commonly found/seen altered health states. Offered Fall.

**Prerequisite:** BIO 2870 with a minimum grade of C

**AHS 4090 Capstone in Applied Health Sciences Cr. 3**

The purpose of Capstone in Applied Health Sciences is to provide culminating curricular experiences for students enrolled in the Bachelor of Science degree with a major in applied health sciences. Students will participate in several projects which demonstrate a synthesis of learning accumulated in the major, including broadly comprehensive knowledge of the discipline and its methodologies. With faculty approval, students will complete a capstone project that aligns with their career goals. Offered Fall, Winter.

**Prerequisites:** AHS 2010 with a minimum grade of C, AHS 2020 with a minimum grade of C, AHS 2030 with a minimum grade of C, AHS 3010 with a minimum grade of C, AHS 3020 with a minimum grade of C, AHS 3030 with a minimum grade of C, AHS 4010 with a minimum grade of C (may be taken concurrently), and AHS 4020 with a minimum grade of C (may be taken concurrently)

## AIA - Art: Interior Design

**AIA 1610 Architectural Drafting and Perspective Drawing Cr. 3**

Introduction to architectural drafting, perspective drawing and presentation. Offered Winter.

**Fees:** \$45

**AIA 2600 Interior Design: CAD I Cr. 3**

Continuation of computer-aided design. Plans, elevations, sections, details, dimensioning and description. System furniture space planning; Windows-based auto CAD. Offered Fall.

**Prerequisites:** AIA 1610

**Fees:** \$45

**AIA 2610 Interior Design Studio I Cr. 3**

Single family residential/small-scale office. Presentation techniques; introduction to media and methods used in the preparation of presentation boards: layout, selection, rendering, plan, elevation, lettering and verbal presentation. Offered Fall.

**Prerequisites:** AIA 1610

**Fees:** \$45

**AIA 3610 Interior Design Studio II Cr. 3**

Hospitality/restaurant/health care. Continuation of graphic and presentation skill development incorporating plan, elevation, section, detailing, perspective, hand and CAD drawings. Experimentation with lighting, media, board, and verbal presentation. Offered Winter.

**Prerequisites:** AIA 2610

**Fees:** \$45

**AIA 3620 Interior Design: CAD II Cr. 3**

Intermediate-level CAD. Development and creation of construction documents, space planning of interior spaces, and systems layout, using autoCAD drafting techniques in two- and three-dimensional modes. Offered Winter.

**Prerequisites:** AIA 1610, AIA 2600, and AIA 2610

**Fees:** \$50

**Repeatable for 12 Credits**

**AIA 4600 Environmental Design Theory Cr. 3**

History of interiors: ergonomic, environmental elements. Introduction to building and barrier-free design codes. Acoustical, HVAC and electrical systems. Offered Fall.

**Prerequisites:** AIA 2610

**Restriction(s):** Enrollment limited to students in a Bachelor of Arts or Bachelor of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$35

**AIA 4610 Interior Design Studio III Cr. 3**

Retail/contract open-office system, medium to large scale, new or adaptive reuse projects. Advanced hand and CAD graphic, presentation skill development, incorporating building and barrier-free codes, HVAC and lighting principles, furniture and equipment specification. Offered Fall.

**Prerequisites:** AIA 2600 and AIA 3610

**Fees:** \$40

**AIA 4620 Interior Perspective and Illustration Cr. 3**

Introduction to architectural and interior design presentation techniques. Offered Fall.

**Fees:** \$45

**AIA 4990 Directed Study Cr. 2-4**

Offered Fall, Winter.

**Fees:** \$45

**Repeatable for 6 Credits**

**AIA 5010 Furniture/Product Workshop Cr. 3**

History, ergonomic and design development of furniture and product design. Projects evolve from hand and CAD drawings to scaled models of furniture and product designs. Offered Fall.

**Prerequisites:** AIA 1610, AIA 2610, and AIA 5610

**Fees:** \$55

**Repeatable for 9 Credits**

**AIA 5020 Special Topics in Interior Design Cr. 3**

Exploration of concepts and techniques related to the field of Interior Design. Offered Yearly.

**Prerequisite:** AIA 1610

**Repeatable for 9 Credits**

**AIA 5610 Interior Materials and Systems Cr. 3**

Estimating, specifying, and the techniques used in the application of materials and systems used in interior design. Lectures, guest speakers, and field trips. Offered Winter.

**Fees:** \$40

**AIA 5620 Building Construction Systems in Architecture I Cr. 3**

Residential and commercial construction systems incorporating governmental and building codes; site and foundation to roof systems; small-scale hand and CAD documentation of architectural details. Offered Fall.

**Prerequisites:** AIA 2610 and AIA 3610

**Fees:** \$45



**AIA 5630 Interior Lighting Design and Application Cr. 3**

Lighting sources, fixtures, manufacturer's lighting system and application to interior spaces. Basic lighting footcandle calculations; layouts and psychology of lighting description to be applied in a final project. Offered Winter.

**Prerequisites:** AIA 3610 and AIA 4610

**Fees:** \$40

**AIA 5640 Building Construction Systems in Architecture II Cr. 3**

Development of architectural construction documents: working drawings and written specifications of commercial interior space; plan, elevation, section, details and perspective through hand and CAD documentation. Offered Winter.

**Prerequisites:** AIA 2600, AIA 4600, AIA 4610, and AIA 5620

**Fees:** \$60

**AIA 5660 Supervised Field Experience Cr. 3**

Supervised field study experience designed to correlate classroom theory with professional practice. Offered Every Term.

**Fees:** \$35

**Repeatable for 6 Credits**

**AIA 5991 Directed Projects: Interior Design Cr. 3-6**

Individual problems. Offered Fall, Winter.

**Fees:** \$60

**Repeatable for 9 Credits**

**AIA 5997 Senior Seminar Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency

In this course, students will develop their distinct visual brand identity, professional portfolio and online presence. Students will gain greater competency in the contemporary design industry while developing skills in standard forms of professional communication. Offered Fall, Winter.

**Prerequisite:** AIA 3610 or AID 5300

**Fees:** \$60

**AIA 6610 Interior Design Studio IV Cr. 3**

Large-scale new or adaptive re-use: office, hospitality, health-care or retail interior spaces. Professional hand and CAD graphic and skill development. Integration of codes, ADA, human factors, HVAC and lighting principles, furniture and equipment specification related to specific environment. Offered Winter.

**Prerequisites:** AIA 4610 and AIA 5640

**Fees:** \$60

**AIA 6650 Business Practicum Cr. 2**

Examination of different types of business formations and their characteristics; professional practices and procedures, professional ethics, contemporary topics in interior design practice. Offered Fall.

**Prerequisites:** AIA 4610

**Fees:** \$60

## AID - Art: Industrial Design

**AID 3300 Introduction to Industrial Design Cr. 3**

Introduction to fundamental skills necessary for the practice of industrial design. Two-dimensional presentation techniques are developed in first half of semester; second portion consists of exercises in problem-solving methodology. Offered Fall, Winter.

**Fees:** \$20

**Repeatable for 6 Credits**

**AID 3310 Presentation Cr. 3**

Two-dimensional visualization, monochromatic and polychromatic sketch techniques using a variety of traditional media. Offered Fall, Winter.

**Prerequisites:** ACO 1200 and ADR 1050

**Repeatable for 9 Credits**

**AID 4300 Product Design Engineering Cr. 3**

Students build on basic skills in projects exploring conceptual problem-solving in two dimensions. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Engineering or Fine, Performing & Comm. Arts.

**Repeatable for 6 Credits**

**AID 4600 Transportation Design/Engineering Cr. 3**

Conceptual projects related to transportation design, utilizing skills developed in AID 4300. Offered Winter.

**Prerequisites:** AID 4300

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Fees:** \$20

**AID 5300 Advanced Studio/Product Cr. 3**

Advanced techniques in presentation of design solutions. Students build upon their ability to communicate two-dimensionally; introduction of digital manipulation and creation software. Offered Fall, Winter.

**Prerequisites:** AID 3300

**Fees:** \$20

**Repeatable for 15 Credits**

**AID 5302 Advanced Studio/Batch Production Cr. 3**

In this studio class students will learn about techniques of batch limited production of design objects and aspects of entrepreneurship. Students will design, produce, package, and market a simple consumer object. Offered Fall, Winter.

**Prerequisites:** AID 3300

**Fees:** \$20

**Repeatable for 6 Credits**

**AID 5310 Advanced Presentation Cr. 3**

Advanced techniques in the presentation of design solutions. Students build on their ability to communicate two-dimensionally, with introduction of digital manipulation and creation software. Offered Fall.

**Prerequisites:** AID 3310

**Fees:** \$100

**Repeatable for 9 Credits**

**AID 5330 3-D Modeling Cr. 3**

Principles of three-dimensional modeling. Surface development, rendering, and creation of virtual environments. Offered Fall.

**Prerequisites:** AID 3300

**Fees:** \$100

**Repeatable for 9 Credits**

**AID 5997 Senior Seminar Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency

Seminar on contemporary issues in industrial design including professional concerns in transportation and product design, presentation, and production. Offered Every Other Year.

**AID 6300 Advanced Studio: Transportation Cr. 3**

Form and proportion studies. Development of sketch techniques for communicating the complex form of the automotive body. Taught by professional automotive designers. Offered Fall, Winter.

**Prerequisites:** AID 3300

**Fees:** \$20

**Repeatable for 9 Credits**

**AID 6301 Design for Urban Mobility Cr. 3**

Considers broad questions of mobility and how design can enable and support mobility through urban space. Students will engage in projects that address these questions in different ways including products, spaces, experiences, and other forms of design interventions. Offered Fall, Winter.

**Prerequisites:** AID 3300

**Fees:** \$20

**Repeatable for 6 Credits**

**AID 6310 Advanced Studio/Exhibit Cr. 3**

Advanced design concepts in exhibit design. Project planning, ideas of brand imaging, phenomenological notions of the spatial experience. Offered Fall.

**Prerequisites:** AID 5300

**Fees:** \$20

**Repeatable for 9 Credits**

**AID 7300 Graduate Industrial Design Cr. 3-9**

Individual problems in industrial design. Offered Fall, Winter.

**Prerequisites:** AID 5300 or AID 6300

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree.

**Fees:** \$20

**Repeatable for 24 Credits**

## AME - Art: Metalsmithing

**AME 2600 Introduction to Jewelry and Metalsmithing Cr. 3**

Basic skills: sawing, filing, drilling, sanding, polishing, creating textures on metal, riveting, soldering, and bezel setting of stones. Creation of jewelry and small functional objects. Offered Every Term.

**Fees:** \$75

**AME 2650 Blacksmithing I Cr. 3**

This course is an introduction to blacksmithing skills and techniques. The history of blacksmithing and its contemporary practices will be covered as a way to understand different time periods and varying cultural approaches. Hands on applications and material usage will be covered to create objects, tools and artworks dependent on forging. Offered Every Other Year.

**Fees:** \$75

**AME 3600 Intermediate Jewelry I Cr. 3**

Lost-wax casting and mold-making. Creating, preparing and casting into metal of wax models. Vulcanized rubber mold-making. Commercial jewelry techniques. Offered Every Term.

**Prerequisites:** AME 2600

**Fees:** \$90

**AME 3601 Intermediate Jewelry II Cr. 3**

Advanced metal fabrication and surface treatment. Topics include: digital fabrication, laser welding, induction casting, stone setting techniques, acid etching, granulation, keum boo, patination, hinge mechanisms and more complex soldering techniques. Offered Fall, Winter.

**Prerequisites:** AME 3600

**Fees:** \$90

**AME 3650 Blacksmithing II Cr. 3**

This course is intended for students who have already acquired basic blacksmithing skills for ferrous and non-ferrous metals. Using complex hand-skill techniques and applications of mechanical tooling to achieve predictable results, students will develop stronger visual literacy of blacksmithing of both its contemporary extensions of utility and conceptual work. Through exploring innovation in culture and its material usage for ornamentation, an ethos will be stressed. Tool creation and use through hot forging, forge welding, layering material, riveting and basic joinery will be emphasized. Offered Every Other Fall.

**Prerequisite:** AME 2650

**Fees:** \$90

**Repeatable for 6 Credits**

**AME 4600 Metalsmithing I Cr. 3**

Utilizing plastic qualities of metal to generate high relief forms.

Techniques include: raising and sinking, anticlastic and synclastic raising, nonferrous and ferrous forging. How metals may be stretched to create forms with a high degree of volume. Offered Fall, Winter.

**Prerequisites:** AME 2600

**Fees:** \$90

**Repeatable for 6 Credits**

**AME 4601 Metalsmithing II Cr. 3**

Utilizing plastic qualities of metal to generate high relief forms.

Techniques include: raising and sinking, anticlastic and synclastic raising, nonferrous and ferrous forging. How metals may be stretched to create forms with a high degree of volume. Offered Fall, Winter.

**Prerequisites:** AME 4600

**Fees:** \$90

**Repeatable for 6 Credits**

**AME 4650 Blacksmithing III Cr. 3**

Builds upon technical and conceptual extensions of blacksmithing for commission work, art installations, decorative ornamentation and creative forms using ferrous and non-ferrous metals. Advanced blacksmithing processes will be emphasized through the use of a diverse cross-section of skills ranging from hand work, machine production and the use of digital applications. Processes and equipment learned include: CNC plasma cutter, laser cutters for creation of dies, milling machines, lathes, CNC milling, use of dies for hot forming with a hydraulic press and power hammer. Offered Every Other Winter.

**Prerequisite:** AME 2600 and AME 2650

**Fees:** \$90

**Repeatable for 9 Credits**

**AME 5600 Advanced Jewelry and Metalsmithing Cr. 3**

Intellectual and conceptual nature of student's artwork; discussion and analysis. Methods of criticism. Offered Fall, Winter.

**Prerequisites:** AME 3601

**Fees:** \$90

**Repeatable for 6 Credits**

**AME 5860 Directed Projects: Metalsmithing Cr. 3-6**

Individual problems. Offered Fall, Winter.

**Repeatable for 21 Credits**

**AME 7600 Graduate Study in Metal Arts Cr. 3**

Individual problems. Directed study and project development in metal arts. Offered Fall, Winter.

**Prerequisites:** AME 5600

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 9 Credits**

**AME 8860 MFA Studio: Metal Arts Cr. 6-9**

Extended problems in metalsmithing; individual research with eighteen to twenty-seven hours of laboratory per week. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 36 Credits**

# AN - Anesthesia

## **AN 3000 Introduction to Nurse Anesthesia Cr. 2**

This course will introduce students to the field of nurse anesthesia, including leadership positions in the field and the purpose and history of our state and national organizations. Furthermore, the course will prepare students for application to a Doctorate of Nurse Anesthesia Program by reviewing topics critical to success in a program, as well as allow students to shadow a Certified Registered Nurse Anesthetist (CRNA) and experience the Wayne State Nurse Anesthesia Program simulation lab. Offered Spring/Summer.

## **AN 7010 Advanced Health Assessment and Clinical Diagnosis Cr. 3**

This course will provide the registered nurse anesthesia student with the knowledge and advanced systematic focus on various body systems while completing a comprehensive health assessment for patients across the lifespan, including but not limited to adult, pediatric, geriatric, and obstetric patients. Students utilize critical thinking as well as diagnostic procedure results to interpret, analyze and provide differential diagnosis of common patient problems, while utilizing common assessment techniques for each body system. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**Equivalent:** PHC 7021

## **AN 7020 Practicum and Simulation I Cr. 2**

This course provides the registered nurse anesthesia student with the opportunity to demonstrate clinical applications of AN 7010 in a simulated environment. There is special focus on practicing the induction, maintenance, and emergence phases of anesthesia, along with crisis management. This course also includes clinical orientation. Offered Winter.

**Prerequisites:** AN 7010 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$20

## **AN 7030 Advanced Clinical Practicum II Cr. 2**

Clinical experiential with guided, supervised instruction in the management of patients receiving anesthesia, emphasizing patient safety, basic and advanced monitoring modalities, and implementation of anesthesia management plans. This course provides an avenue for students to apply knowledge obtained in the anesthesia and science courses in a clinical setting. Simulation experiences are designed to reinforce topics covered in AN 7010 and AN 7150. Offered Spring/Summer.

**Prerequisites:** AN 7020 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$15

## **AN 7040 Clinical Anesthesia Practicum III Cr. 2**

This course builds upon the knowledge and skills obtained from previous clinical practicums. This course provides supervised instruction in the perioperative management of patients receiving all types of anesthesia in a variety of clinical settings. Increasingly complex cases will be assigned. Simulation experiences are designed to reinforce topics covered in AN 7010, AN 7150 and AN 7160. Offered Fall.

**Prerequisites:** AN 7030 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$20

## **AN 7050 Clinical Anesthesia Practicum IV Cr. 2**

This course builds upon the knowledge and skills obtained from previous clinical practicums. This course provides supervised instruction in the perioperative management of patients receiving all types of anesthesia in a variety of clinical settings. Development of advance skills with an emphasis on specialty areas such as cardiovascular, neurosurgical, trauma, obstetrics, and pediatrics. Simulation experiences are designed to reinforce topics covered in AN 7010, AN 7150, AN 7160, AN 7170 and AN 7600. Offered Winter.

**Prerequisites:** AN 7040 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$20

## **AN 7060 Clinical Anesthesia Practicum V Cr. 3**

This course builds upon the knowledge and skills obtained from previous clinical practicums. This course provides supervised instruction in the perioperative management of patients undergoing all types of surgery with various anesthetic techniques in diverse clinical settings. Continued development of advance skills with an emphasis on specialty areas such as cardiovascular, neurosurgical, trauma, obstetrics, and pediatrics. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$20

## **AN 7070 Clinical Anesthesia Practicum VI Cr. 3**

This course builds upon the knowledge and skills obtained from previous clinical practicums. This course provides supervised instruction in the perioperative management of patients undergoing all types of surgery with various anesthetic techniques in diverse clinical settings. Continued development of advance skills with an emphasis on specialty areas such as cardiovascular, neurosurgical, trauma, obstetrics, and pediatrics. Offered Fall.

**Prerequisites:** AN 7060 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$20

## **AN 7080 Clinical Anesthesia Practicum VII Cr. 3**

This course builds upon the knowledge and skills obtained from previous clinical practicums. This course provides supervised instruction in the perioperative management of patients undergoing all types of surgery with various anesthetic techniques in diverse clinical settings. Simulation experiences are designed to reinforce topics covered in AN 7010, AN 7150, AN 7160, AN 7170, AN 7600 and 7181. Offered Winter.

**Prerequisites:** AN 7070 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$20

## **AN 7090 Clinical Anesthesia Practicum VIII Cr. 3**

This course builds upon the knowledge and skills obtained from previous clinical practicums. This course provides supervised instruction in the perioperative management of patients undergoing all types of surgery with various anesthetic techniques in diverse clinical settings. Offered Spring/Summer.

**Prerequisites:** AN 7080 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$20

**AN 7100 Advanced Pharmacology I Cr. 3**

Discuss the chemistry, pharmacokinetics and pharmacodynamics of medications as pertaining to nurse anesthesia. Major drug categories pertaining to anesthesia practice, as well as drug therapies and classes pertinent to acute and chronic responses to anesthesia; indications, mechanisms, effects. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PHC 7031

**AN 7110 Advanced Pharmacology II Cr. 3**

Discuss the chemistry, pharmacokinetics and pharmacodynamics of medications as pertaining to nurse anesthesia. Major drug categories covered include drug therapies and classes pertinent to acute and chronic responses to anesthesia, including indications, mechanisms, and effects. Also discuss effects of anesthetics in specialized populations such as geriatrics, obesity, obstetric, substance abuse and pediatric populations. Offered Winter.

**Prerequisites:** AN 7100 with a minimum grade of B or PHC 7031 with a minimum grade of B

**Restriction(s):** Enrollment limited to students in the Doctor of Nur Anesthesia Pract program; enrollment is limited to Graduate level students.

**Equivalent:** PHC 7032

**AN 7150 Principles of Anesthesia I Cr. 3**

This course provides the registered nurse anesthesia student with introductory principles of clinical anesthesia including technology, anatomy, pathophysiologic implications, and anesthetic techniques for various surgical procedures. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7160 Principles of Anesthesia II Cr. 3**

This course begins an in-depth study of the principles of anesthesia for the care of the anesthetized patient. Emphasis will be on the pathophysiology of frequently encountered disease processes for the adult surgical patient. Risk factors, pathophysiological changes, presenting signs and symptoms and anesthetic considerations will be discussed and applied to individual patient care. Offered Spring/Summer.

**Prerequisite:** AN 7150 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7170 Principles of Anesthesia III Cr. 3**

Study of the subspecialties in anesthesia and the knowledge required to manage anesthesia for the patient. In-depth knowledge regarding anesthesia for neurosurgery, pediatrics, obstetrics, and cardiovascular patients. Offered Fall.

**Prerequisite:** AN 7160 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7181 Advanced Principles of Anesthesia IV Cr. 3**

Designed to provide specific knowledge in the use of advanced diagnostic tools and concepts in the management of complex patients. This course finishes an in-depth study of the principles of anesthesia for the care of the anesthetized patient. The focus is on complex management of the patient. Emphasis will be on the pathophysiology of frequently encountered disease processes for the adult surgical patient and diagnostic interpretation. Risk factors, pathophysiological changes, presenting signs and symptoms and anesthetic considerations will be discussed and applied to individual patient care. Offered Winter.

**Prerequisite:** AN 7170 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7220 Advanced Physiology I Cr. 3**

Discuss aspects of anatomy and physiology that are relevant to the science and practice of anesthesia. Topics are covered from cellular, tissue, organ, and systems perspective, and related to issues of advance nurse anesthesia practice. The focus of this course is to impart concepts of advanced physiology which are elemental to the safe practice of anesthesia. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Nur Anesthesia Pract program; enrollment is limited to Graduate level students.

**Equivalent:** PHC 7221

**AN 7240 Advanced Physiology II Cr. 3**

Continuation of AN7240. Discuss further aspects of anatomy and physiology that are relevant to the science and practice of anesthesia, as well as pathologic processes. Topics are covered from cellular, tissue, organ, and systems perspective, and related to issues of advance nurse anesthesia practice. The focus of this course is to impart concepts of advanced physiology and pathophysiology which are elemental to the safe practice of anesthesia. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PHC 7241

**AN 7241 Pathophysiology Cr. 3**

Discuss the pathophysiologic changes associated with various disease processes. The focus of this course is to impart concepts of pathophysiology in the framework of the various body systems and disruptions in normal body functioning for individuals across the lifespan. Offered Winter.

**Prerequisite:** AN 7240 with a minimum grade of B

**Restriction(s):** Enrollment limited to students in the Doctor of Nur Anesthesia Pract program; enrollment is limited to Graduate level students.

**Equivalent:** PHC 7242

**AN 7500 Physics, Equipment, and Safety for Anesthesia Cr. 2**

Introduction to the basic principles of physics and their application to anesthesia. Focus on processes that ensure safe anesthesia practice. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Nur Anesthesia Pract program; enrollment is limited to Graduate level students.

**Equivalent:** PHC 7501

**AN 7600 Regional Anesthesia Cr. 3**

This course discusses key components related to regional anesthesia practice and their application in the clinical arena which includes acute and chronic pain therapies. Spinal/epidural anesthesia, upper and lower extremity nerve blocks, truncal blocks are covered with special emphasis on anatomy, physiology, drugs and equipment. Ultrasound physics and its application in regional anesthesia is covered and applied in the Anesthesia Sim Lab environment. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$96

**Equivalent:** PHC 7601

**AN 7640 Research and Statistics Cr. 3**

This course will provide the nurse anesthesia student with the knowledge, skills, and abilities to perform extensive literature searches, critically appraise the available research evidence, synthesize information from diverse formats and sources, and cogently express understanding of complex concepts in both verbal and written forms. This course will also involve discussion, review and interpretation of basic and clinical biostatistics. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PHC 7641



**AN 7780 Professional Dimensions Cr. 3**

The history of the profession, scope of practice, standards of practice, professional ethics, regulatory controls, interprofessional collaboration, cultural competence, and unconscious bias are explored. Students will develop an understanding and appreciation of our professional organizations, the American Association of Nurse Anesthetist (AANA). In addition, the importance of a life-long learner will be explored and the significance of maintaining health and well-being will be emphasized. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7880 Anesthesia Seminar Cr. 1**

This course allows students to gain experience in critical reading of scholarly articles and case reports, including data analysis and interpretation and translation of research findings into evidence based practices. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PHC 7880

**Repeatable for 4 Credits**

**AN 7890 DNAP Project Proposal Cr. 1**

Begin fundamental strategies for research development toward applicable clinical doctoral studies. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7891 Advanced Clinical Application I Cr. 2**

Part 1 of a 2-part course, this course builds on previously acquired knowledge to provide a comprehensive overview of clinical practice. This course will use theoretical concepts and advanced clinical principles to develop the art and science of practice with emphasis on individualizing care, crisis management scenarios in anesthesia will also be offered in simulation. Offered Winter.

**Prerequisite:** AN 7181 with a minimum grade of B and AN 7241 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7892 Advanced Clinical Application II Cr. 3**

Part 2 of a 2-part course, this course builds on previously acquired knowledge to provide a comprehensive overview of clinical practice. This course will use theoretical concepts and advanced clinical principles to develop the art and science of practice with emphasis on individualizing care, applying theoretical and scientific processes to test questions, in preparation for the SEE examination and NCE. Offered Spring/Summer.

**Prerequisite:** AN 7891 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7900 Advanced Pediatric Topics Cr. 2**

Detailed advanced lectures in specific pediatric topics. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**AN 7901 Leadership in Nurse Anesthesia Practice Cr. 3**

This course will provide the nurse anesthesia student with the knowledge, skills, and abilities to serve as effective members of healthcare teams. The course will introduce foundational concepts necessary to manage and lead. Students will be exposed to organizational styles, conflict management theories, cultural assessment, and methods of driving creativity and innovation. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7902 Ethics and Health Care Cr. 3**

This course serves as an advanced introduction to health care ethics, designed specifically for nurse anesthesia students. Ethical principles and personal values that shape professional practice and influence decision making will be expounded upon in the discussion of contemporary issues in health care. Offered Fall.

**Prerequisite:** AN 7901 with a minimum grade of B

**Restriction(s):** Enrollment limited to students in the Doctor of Nurse Anesthesia Pract program; enrollment is limited to Graduate level students.

**Equivalent:** PHC 7902

**AN 7903 Health Care Policy Cr. 3**

This course presents an introduction to health policy, i.e., the various ways in which the government plays a role in health and in the provision of health care, how it influences nurse anesthesia, and the role advocacy plays. Health policies can have a profound effect on quality of life. Accessibility, cost, quality of health care; safety of food, water, and environment; the right to make decisions about our health; these issues are vitally tied to health policies. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 7910 Special Topics in Pediatric Anesthesia Cr. 2**

Common pediatric problems; in-depth knowledge on neonatal anesthesia. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**AN 7920 Case Presentations Cr. 2**

Anatomy and physiology of various diseases including principles of anesthetic management. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**AN 7990 Nurse Anesthesia Studies Directed Study Remediation Cr. 1**

This course serves to help students remediate for deficient academic competencies in the Nurse Anesthesia Studies Program. It is student-driven with guidance and definitive expectations determined by the instructor. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**AN 8000 DNAP Project I Cr. 1**

This course is a continuation of AN 7890. The course will culminate in the nurse anesthesia student demonstrating the knowledge, skills, and abilities needed to write a research scholarly paper of publishable quality. The focus of this course is on refining the DNAP Project Proposal and submission of IRB if applicable. This course will facilitate the student's implementation of a scholarly project. Offered Winter.

**Prerequisite:** AN 7890 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**AN 8001 DNAP Project II Cr. 1**

This course is a continuation of AN 8000. The course will culminate in the nurse anesthesia student demonstrating the knowledge, skills, and abilities needed to write a research scholarly paper of publishable quality. The focus of this course is IRB submission (if not completed in AN 8000) and implementation of a DNAP research project. Offered Spring/Summer.

**Prerequisite:** AN 8000 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.



### **AN 8002 DNAP Project III Cr. 1**

Continue development of appropriate protocol for timely research, including data collection and analysis. Offered Fall.

**Prerequisite:** AN 8001 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

### **AN 8003 DNAP Project IV Cr. 1,2**

Complete final research dissemination products, including presentation of research to public. Offered Winter.

**Prerequisite:** AN 8002 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

### **AN 8004 DNAP Project Completion Cr. 1,2**

This course is a continuation of AN 8003. The course will culminate in the nurse anesthesia student demonstrating the knowledge skills and abilities to translate research findings into practice. In addition, the nurse anesthesia student will have demonstrated throughout AN 7640, 7890, 8000-8004 scholarship skills including but are not limited to the ability to perform extensive literature searches, critically appraise the available research evidence, synthesize information from diverse formats and sources, and cogently express understanding of complex concepts in both verbal and written forms, all while demonstrating high professional, personal, and intellectual integrity. Offered Spring/Summer.

**Prerequisite:** AN 8003 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Nurse Anesthesia Practice; enrollment is limited to Graduate level students.

**Fees:** \$20

## **ANA - Anatomy and Cell Biology**

### **ANA 6050 Biology of the Eye Cr. 3**

Introduction to biology of eye structure/function, and to causes and clinical treatments of eye-related disorders and diseases. Offered for undergraduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**Equivalent:** BIO 6055, PYC 6050

### **ANA 7010 Human Gross Anatomy Cr. 8**

Lectures and dissection of limbs, back, thorax, abdomen, head and neck, pelvis and perineum. Written and practical examinations. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

### **ANA 7030 Human Microscopic Anatomy Cr. 4**

The microscopic structure of tissues and organs. Lectures and laboratory study. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology or Pathology; enrollment is limited to Graduate level students.

### **ANA 7055 Biology of the Eye Cr. 3**

Integrated introduction to basic biological structure/function of the eye; causes and clinical treatments of eye-related disorders and diseases. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 7055

### **ANA 7065 Mechanisms of Ocular Disease I Cr. 2**

Lectures and readings on mechanisms and current treatments for diseases of the anterior segment of the eye. Offered Winter.

**Prerequisite:** ANA 7055 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

### **ANA 7075 Mechanisms of Ocular Disease II Cr. 2**

Lectures and readings on mechanisms and current treatments for diseases of the posterior segment of the eye. Offered Fall.

**Prerequisite:** ANA 7055 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

### **ANA 7130 Neuroanatomy Cr. 4**

Lecture and laboratory study of the nervous system. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

### **ANA 7260 Special Dissection Cr. 2-10**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**Repeatable for 20 Credits**

### **ANA 7270 Special Projects in Anatomy Cr. 2-10**

Research rotations leading to selection of permanent advisor. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

### **ANA 7890 Seminar Cr. 1**

Biweekly departmental seminar. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

### **ANA 7996 Research Cr. 15**

Research under direction of permanent advisor. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**Repeatable for 30 Credits**

### **ANA 8999 Master's Thesis Research and Direction Cr. 1-8**

Original research leading to M.S. degree under Plan A. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major in Anatomy & Cell Biology; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

### **ANA 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

### **ANA 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Doctoral Candidate; enrollment is limited to Graduate level students.

### **ANA 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ANA 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

### **ANA 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ANA 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

### **ANA 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ANA 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANA 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## ANT - Anthropology

**ANT 1100 Introduction to Anthropology Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

Study of humanity, past and present: cultural diversity and change, human evolution, biological variability, archaeology, ethnography, language, and contemporary uses of anthropology. Offered Every Term.

**ANT 1110 Work and Democracy: An Introduction Cr. 3**

**Satisfies General Education Requirement:** Civic Literacy

The course explores the role that labor and the labor movement have played in shaping democracy in the United States over the past two centuries and the limits of democracy in the workplace. It covers key political achievements of labor and workers' organizations and the contemporary challenges they face today. Key themes include labor and citizenship, industrial democracy, the role of the state in mediating labor relations, gender, race, sexuality and labor, the labor movement as a social movement, and power and politics in the workplace. Offered Every Term.

**Equivalent:** ELR 1110, HIS 1110, PS 1110

**ANT 2020 Global Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Detroit has been a meeting place for people from around the world for centuries. This course explores the global movements of peoples, ideas, and money that made the city what it is today. It will draw upon the tools and methods of anthropology to examine periods when the city's multicultural character has been viewed as a source of strength, and at other times when diversity has been perceived as source of discord and social problems. Students will be expected to participate in fieldtrips and other off campus activities. Offered Yearly.

**ANT 2050 Anthropology of Business Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry  
Differences between American culture/business practice and the culture/business practice of other countries: cultural assumptions, world views, family structure, social organizations, and language. Offered Every Term.

**ANT 2110 Introduction to Biological Anthropology Cr. 3**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry

Role of hereditary and environmental factors, human genetics, meaning of "race" and racial classifications, fossil records, non-human primate behavior and evolution. Offered Every Term.

**ANT 2130 Introduction to Forensic Anthropology and Human Rights Cr. 3**

Introduction to forensic anthropology and its intersections with human rights issues and investigations in criminology, law, anthropology, and related fields. Forensic anthropology is a subfield of biological anthropology, but interdisciplinary cultural theories in justice, violence, and human rights influence how forensic anthropology is practiced in the US and abroad. The course introduces the basic scientific methodologies used by forensic anthropologists to analyze biological and material remains. It then applies forensic anthropological casework to the examination of human rights investigations and humanitarian concerns to understand how culture influences forensic science and vice versa. Offered Yearly.

**Equivalent:** CRJ 2130

**ANT 2200 Lost Cities and Ancient Civilizations Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry

Introductory archaeology course that uses comparative perspective to study how and why early civilizations and cities developed, functioned, and collapsed in different parts of the world. Focus on the role archaeology plays in understanding the past and present. Geared toward the non-major. Offered Every Term.

**ANT 2400 Food and Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry

Uses food and foodways as a lens to understand social, cultural, political, and economic issues around the world. Lectures draw from the interdisciplinary field of food studies that includes anthropological and historical texts and films. Topics include commensality, globalization, nationalism, food taboos, power, memory, etiquettes, food justice, and food and health. Includes field trips to local food places in Metro Detroit. Offered Intermittently.

**ANT 2500 Archaeology of the Great Lakes Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry

This course is designed for students interested in learning more about the cultural heritage of the Great Lakes region. Students will be introduced to the Native cultures and archaeology of Michigan and the Great Lakes basin. The class will cover the time period from the beginnings of human occupation of the area through early historic times. Starting with the paleo-Indians and continuing through European contact, we will explore the richness of the prehistoric Native cultures of the region as revealed through the archaeological record and ethnohistoric sources. Offered Intermittently.

**ANT 3020 Introduction to Archaeology Cr. 3**

Introduction to the basic principles and science of archaeology. Case studies from all time periods and regions worldwide. Examination of the intersection of archaeology with other disciplines (history, geology, criminal justice, chemistry). Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ANT 3030 History of Anthropology Cr. 3**

Required for majors. History of ideas and explanatory theories in anthropology; continuities and disjunctures in British, French, American, German, Belgian, Russian, and Third World anthropologies. Offered Fall.

**Prerequisite:** ANT 1100 with a minimum grade of D-

**ANT 3061 Oral History in Middle Eastern Tradition Cr. 3**

Methodologies, techniques and applications of oral history used as tools to investigate modern social history of Middle Eastern societies. Offered Every Other Year.

**Equivalent:** NE 3061

**ANT 3100 World Cultures Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry

Human societies exhibit tremendous diversity. How and why do we differ? What do these differences mean in today's world? Explore, contrast, compare, and understand the differences between and within societies such as those of Amazon rain forest, China, Japan, Alaska, India, the United States, and France. Special attention will be focused on how anthropologists think about and represent cultural differences through ethnographic writing, film, and other media. Offered Fall.

**ANT 3111 Digital Storytelling and Ethnic Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Students will learn about the ethnic, racial, and cultural history of Detroit and how to document elements of that history. This course introduces students to both theoretical and practical concepts around digital storytelling, drawing on extensive theoretical scholarship about placemaking, experiencing place, and the social production of heritage that spans the disciplines of anthropology, historical archaeology, heritage studies, historic preservation, media studies, and mobilities. Students will learn the practical steps involved in creating digital stories and will be introduced to best practices in multimedia development as discussed in the literature in the field of instructional technology. They will also explore the cultural, ethical and technological considerations involved in creating and disseminating digital stories. They will then create their own short digital story, which they will be able to share with the website Ethnic Layers of Detroit. Offered Yearly.

**Equivalent:** GLS 3111, POL 3111, RUS 3111

**ANT 3220 The Inca and their Ancestors Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Focuses on the archaeology, landscapes, and art of ancient South America as an introduction to the diversity and achievements of pre-Columbian civilizations. Beginning with the Inca and working backwards, we explore the richness of ancient Andean and Amazonian cultures as revealed through the archaeological record, ethnohistoric sources, and the use of ethnographic analogy. Topics include: ecological diversity and human adaptation; migration; the domestication of plants and animals; monumental architecture; great art styles; the rise of social hierarchies; and ancient cosmological understandings. Using the methods of archaeology, visual analysis, analogical reasoning, and anthropological insights, we look at what the long temporal perspective on ancient South American cultures can tell us about modern political issues and ecological sustainability. Offered Intermittently.

**ANT 3310 Language and Culture Cr. 3**

An introduction to linguistic anthropology. Using comparative approaches to language and culture across time and space, explore variation and change, cognitive dimensions of language, language evolution, linguistic myths, and the use of language in social practice. Offered Fall.

**Prerequisites:** ANT 2100 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or ANT 1100 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** LIN 3310

**ANT 3333 Introduction to Sociocultural Anthropology Cr. 3**

Sociocultural anthropologists use ethnography to understand human experience in settings that vary from ancient rituals to multiplayer online games. This course provides an in-depth study of the various approaches to ethnographic research used by anthropologists in the present as well as the past. Offered Yearly.

**ANT 3400 Introduction to Medical Anthropology Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry

Introduction to Medical Anthropology uses a biosocial, cross-cultural approach to explore the complexities of health and medicine today – in the United States and elsewhere. It pays special attention to health disparities and how they are experienced by various social groups. This course will expose students to a number of cultural systems of health and illness from around the world and, describe the behaviors, practices, institutions, and/or systems that define them. In keeping with an anthropological approach, it will treat western biomedicine as one of many cultural systems of explaining and addressing illness. Offered Intermittently.

**ANT 3410 Global Health Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences

Introduces students to problems of disease and disorder worldwide and looks at various efforts to define and address these problems through a social science perspective. Offered Every Term.

**Equivalent:** GLS 3410, PH 3410

**ANT 3520 Understanding Africa: Past, Present and Future Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry

In-depth knowledge of Africa through the study of its physiography, prehistory and history, social institutions, and social changes within a global context. Offered Intermittently.

**ANT 3530 Native Americans Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Examines the way that academic disciplines and individual scholars have examined American Indian and Native cultures, traditions and histories. The course focuses on migration, colonization, warfare, Native sovereignty and the contemporary experience to learn about the distinctive perspectives of the indigenous peoples of North America. Examines (scientific and indigenous) accounts of the origin of Native American cultures, their interaction in pre-Contact times, survival and persistence during European conquest and colonization and the continuing struggle within dominant North American society for equity, justice and inclusion. Offered Intermittently.

**ANT 3540 Cultures and Societies of Latin America Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry

Latin American social structures and cultural variation, history, and relationship to the United States. Themes include class, race, ethnicity, gender, religion, globalization, and immigration to the United States. Offered Intermittently.

**Equivalent:** LAS 3540

**ANT 3550 Arab Society in Transition Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry

Distinctive social and cultural institutions and processes of change in the Arab Middle East. Regional variations: background and discussion of current political and economic systems and their relationship to international systems. Offered Intermittently.

**Equivalent:** NE 3550

**ANT 3560 World's Religions Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Global Learning Inquiry

Explores the nature, dynamism, similarities and differences of religions in an anthropological and cross-cultural perspective. Offered Intermittently.

**ANT 3600 Topics in Anthropology Cr. 3**

Selected topics or emerging fields in any of the four anthropology subfields (cultural; physical; archaeology; linguistics). Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**ANT 3700 Globalization: Theories, Practices, Implications Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences

Students develop analytical tools for appraising processes of globalization; acquire a familiarity with the current topical concerns of global studies; and examine economic, political, and cultural approaches to globalization. Offered Winter.

**Equivalent:** GLS 3700

**ANT 3990 Directed Study Cr. 2-6**

Offered Every Term.

**Prerequisites:** ANT 1000-6XXX with a minimum grade of B

**Repeatable for 6 Credits**

**ANT 4993 History Communication Cr. 3**

This course examines the challenges associated with communicating about the past in today's media-saturated environment. Case studies include analysis of communication surrounding controversial historical issues such as slavery and race, to the examination of successful history communicators operating in various media. An important sub-theme focuses on best practices and ethics when it comes to communicating history to non-experts through emerging media. Students also learn how to "economize" the history communicator skillset for the workplace.

Offered Fall.

**Equivalent:** HIS 4993

**ANT 4999 Honors Research and Thesis Cr. 3-6**

Research and thesis to be completed under the direction of a faculty member whose expertise includes the student's area of interest. Advisor and a second reader will read the completed thesis. Offered Every Term.

**ANT 5060 Urban Anthropology Cr. 3**

Social-cultural effects of urbanization from a cross-cultural perspective with emphasis on the developing area of the world. The process of urbanization; the anthropological approach in the area of urban studies. Offered Yearly.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**ANT 5140 Biology and Culture Cr. 3**

Interrelationships between the cultural and biological aspects of humans; human genetic variability, human physiological plasticity and culture as associated mechanisms by which humans adapt to environmental stress. Offered Fall.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 2110 with a minimum grade of D-

**ANT 5165 Shop 'Til You Drop: Consumer Society and Culture Cr. 3**

Why do we want things that we don't need? Are we bound to consumerism in the global age? This course offers an overview of consumer society and examines consumption practices cross-culturally from an anthropological perspective. Offered Every Other Year.

**ANT 5170 Political Anthropology Cr. 3**

Ethnographic and comparative study of power, politics, and political organizations in non-state and state societies and in the colonial encounter; evolutionary, functionalist, practice-oriented, Marxist, feminist, and Foucauldian approaches to the study of power. Offered Intermittently.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**ANT 5180 Forensic Anthropology Cr. 3**

Advanced survey of forensic applications in the natural, medical, legal, and behavioral sciences. Topics may include: toxicology, forensic pathology, fingerprints, ballistics, analysis of the human skeleton, body fluid identification. Lab component included. Offered Intermittently.

**Prerequisites:** CRJ 1010 with a minimum grade of D-, ANT 2110 with a minimum grade of D-, ANT 2130 with a minimum grade of D-, or CRJ 2130 with a minimum grade of D-

**ANT 5210 Anthropological Methods Cr. 4**

Intensive introduction to research methods, techniques and issues in anthropology. Students engage in a research experience supervised by the instructor, write a field journal, and complete a final exam. Exercises focus on data collection, data management, and data analysis. Techniques include participant observation, fieldnotes, and interviewing. Students learn how to use software packages employed by anthropological researchers in the computer lab. Offered Fall, Winter.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**ANT 5240 Cross Cultural Study of Gender Cr. 3**

Evolutionary and cultural bases of gender roles using a world sample; division of labor, marriage and sexual behavior, power and ideology. Offered Intermittently.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**ANT 5270 Concepts and Techniques in Archaeology Cr. 3**

Intensive introduction to archaeological interpretation, theory, and methods geared towards anthropology graduate students and advanced students from related fields. Examines intellectual history of archaeological ideas since mid-20th century and evaluates theoretical frameworks and techniques used to understand the archaeological record, material culture, past environments, social practices, political and economic organizations, and long term culture change. Also considers archaeology's relationships with anthropology and the world beyond academia. Offered Winter.

**Prerequisites:** 3 of (ANT 1100 with a minimum grade of C or ANT 2100 with a minimum grade of C), ANT 3020 with a minimum grade of C, and ANT 3200 with a minimum grade of C

**ANT 5280 Field Work in Archaeology of the Americas Cr. 4**

Introduction to the practice and process of archaeological fieldwork. Students participate in survey and/or excavation of an archaeological site to learn the methods of archaeological recovery and analysis. This class can be counted as a field school. Offered Every Other Fall.

**Fees:** \$50

**ANT 5320 Language and Societies Cr. 3**

For graduate students and advanced undergraduates with a background in linguistic anthropology. Students read classic and contemporary works of linguistic anthropology to expand knowledge of human language and sociality; conduct a major original research project. Offered Winter.

**Prerequisites:** ANT 3310 with a minimum grade of D- or LIN 3310 with a minimum grade of D-

**Equivalent:** LIN 5320

**ANT 5370 Magic, Religion and Science Cr. 3**

The nature and variety of religious belief and practice; theoretical interpretations. Offered Every Other Year.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**ANT 5400 Anthropology of Health and Illness Cr. 3**

Concepts and theory in medical anthropology from cultural and biological perspectives. Topics include: cross-cultural aspects of sex and gender in health and illness, life course, sexuality, birth and death, biocultural approaches to healing and treatment, international health and epidemiology. Offered Every Other Year.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-



**ANT 5410 Anthropology of Age Cr. 3**

Cultural construction of the life course; age categories such as childhood and old age examined from cross-cultural, historical, political and economic perspectives. Special attention to women's aging; role of biology and ethnicity in aging and death and dying. Offered Every Other Year.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**ANT 5420 Anthropology Practicum Cr. 3**

Field placement in a service agency or other organization. Students provide volunteer assistance to an agency while conducting participant observation research exercises. Utilization of field experience to learn about a variety of research issues and methodologies. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ANT 5450 Kinship and Social Relations Cr. 3**

How are kinship relations created, transformed, reshaped, and unmade? How do people experience kinship, and what does it mean to be related? How do these processes, experiences, and imaginations vary across space and time? What is the role of kinship studies in anthropology, and how has this changed over the history of the discipline? This course explores these questions through a rigorous analysis of contemporary and historical readings in the anthropological study of kinship and social relations. This course will draw on case studies from the Americas, Europe, Africa, the Middle East, Asia (Central, East, Southeast), and Melanesia. Offered Intermittently.

**ANT 5500 Historical Archaeology Cr. 3**

Historical archaeology studies the emergence and transformations of the Modern World (post-1500 AD) through the convergence of material remains (artifacts), documentary sources, and oral histories left behind by past societies. Case studies focus on the period between the 16th-20th centuries and are drawn from local and global examples on major topics, such as capitalism, colonialism, race, inequality, gender, sexuality, age, politics, and heritage. Offered Every Other Year.

**ANT 5510 Pre-Columbian and Mesoamerican Civilization Cr. 3**

Survey of the history and characteristics of cultures in Mesoamerica prior to and after colonization, from the Olmec and Maya to the Aztec and their descendants. Offered Every Other Year.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**ANT 5565 Urban Archaeology Cr. 3**

Urban archaeology in the modern and contemporary eras is introduced as an area of social and political engagement with the material remains of the past (ca. 1750 - present). Urban archaeology is entwined with issues of historic preservation, heritage management, city planning, and urban ecology. Class covers a variety of urban archaeology topics in modern and post-industrial Western societies, and involves interactions with Detroit's archaeological and heritage sites, digital humanities techniques, and other approaches that connect urban archaeology with the anthropology of the city. Offered Every Other Year.

**ANT 5600 Museum Studies Cr. 3**

Introduction to basics of museums, museum work, and museum theory. Topics include: collections management, data bases, interpretive exhibit methods, current issues in museum studies, legal concerns, role of museums as educational institutions. Offered Every Other Year.

**ANT 5700 Applied Anthropology Cr. 3**

The application of anthropological concepts and methods to contemporary issues of public concern in the United States and abroad. Offered Fall.

**Prerequisites:** ANT 2100 with a minimum grade of D-, ANT 1100 with a minimum grade of D-, or ANT 7005 with a minimum grade of D-

**ANT 5900 Culture, Language and Cognition Cr. 3**

Systematic investigation of the relationships among, language, cognition and culture, including issues relating to human universals, cross-cultural concept formation, metaphor, classification and the evolution of cognition and language. Offered Every Other Winter.

**Prerequisites:** ANT 3310 with a minimum grade of D-, ANT 5320 with a minimum grade of D-, LIN 3310 with a minimum grade of D-, LIN 5320 with a minimum grade of D-, LIN 3080 with a minimum grade of D-, or PSY 3080 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**Equivalent:** LIN 5900, PSY 5900

**ANT 5993 Writing Intensive Course in Anthropology Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a course designated as a corequisite. See section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing-Intensive Course in the Major requirement. Within first three weeks of enrollment in corequisite course, student must notify instructor of enrollment in ANT 5993. Required for all majors. Offered Winter.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and (ANT 5310 (may be taken concurrently) or ANT 5996 (may be taken concurrently))

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ANT 5996 Capstone Seminar in Anthropology Cr. 3**

Required for majors. Review and integrate central practices and theories in anthropology through discussion of the four major subfields and applied areas of anthropology. Special attention will be given to new developments in the different fields. Recommended for new graduate students without extensive background in anthropology; also open to those outside anthropology who desire a thorough view of research areas and theoretical perspectives in anthropology. Offered Winter.

**ANT 6290 Culture Area Studies Cr. 3**

Culture and social changes. Origins and functional relationships, regional variation in population, settlement, culture contact, religion, migration, social institutions. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**Repeatable for 9 Credits**

**ANT 6510 The Inca and their Ancestors Cr. 3**

Study of pre-Columbian cultures of South America. Archaeological and ethnohistorical data beginning with the Inca; foundations of Inca civilization; major cultures from different regions and periods in South American prehistory. Offered Every Other Year.

**Prerequisites:** 3 of (ANT 1100 with a minimum grade of C or ANT 2100 with a minimum grade of C), ANT 3020 with a minimum grade of C, and ANT 3200 with a minimum grade of C

**ANT 6555 Cultural Resource Management and Public Archaeology Cr. 3**

Practicum focuses on historical development of cultural resource management (CRM) in the U.S.; contemporary regulatory framework of CRM; practical experience in project planning, proposal writing, archival research, project management and the reporting process. Offered Every Other Year.

**Prerequisites:** ANT 5270 with a minimum grade of C or ANT 5280 with a minimum grade of C



**ANT 6570 Archaeological Laboratory Analysis Cr. 4**

Introduction to conventional and innovative laboratory methods used for the analysis of archaeological artifacts from both prehistoric and historic periods. Intensive hands-on class for advanced students using the collections of the Grosscup Museum of Anthropology. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 6650 Studies in Physical Anthropology Cr. 2-4**

Selected topics in physical anthropology. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** ANT 2110 with a minimum grade of D-

**Repeatable for 12 Credits**

**ANT 6680 Studies in Cultural Anthropology Cr. 2-4**

Selected topics in cultural anthropology. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** ANT 2100 with a minimum grade of D- or ANT 1100 with a minimum grade of D-

**Repeatable for 12 Credits**

**ANT 6993 History Communication Cr. 3**

This course examines the challenges associated with communicating about the past in today's media-saturated environment. Case studies include analysis of communication surrounding controversial historical issues such as slavery and race, to the examination of successful history communicators operating in various media. An important sub-theme focuses on best practices and ethics when it comes to communicating history to non-experts through emerging media. Students also learn how to "economize" the history communicator skillset for the workplace. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 6993

**ANT 7005 Proseminar in Anthropology I Cr. 3**

Introduction to anthropological theory including key figures and issues across the discipline. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7010 Proseminar in Anthropology II Cr. 3**

Examination of some major debates in anthropology in contemporary perspective; continuities and breakthroughs. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7030 Debates in Anthropology Cr. 3**

Advanced seminar on enduring questions and key debates in anthropological thought over its history, including different subfields and allied social sciences. Offered Winter.

**Prerequisites:** ANT 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Anthropology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**ANT 7200 Qualitative Modes of Inquiry and Methods Cr. 4**

Qualitative modes of inquiry, methods techniques and research design. Students conduct independent field research and learn data collection methods. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7420 Anthropology Practicum Cr. 3**

Conduct applied anthropological field research as a team for an organization or institution; provide deliverables to the client. Practice research subject recruitment; anthropological methods (participant observation, interviews, focus groups etc.); qualitative data processing and analysis. Discuss research issues including ethics and obligations of involvement in fieldwork situations and prepare for career development using anthropological skills. Offered Yearly.

**Restriction(s):** Enrollment limited to students in a Master of Arts degree.

**ANT 7422 Museum Practicum Cr. 3**

The Museum Practicum course provides students with the opportunity to gain hands-on experience in a museum or cultural institution of their choice. With guidance from the coordinator of the Graduate Certificate in Museum Practice, each student will obtain a placement at an institution and undertake a project in a specific area of museum work under direction of an institutional site supervisor. Over the course of the semester practicum students will experience and reflect upon the working environment, challenges, and opportunities within the museum industry. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7450 Kinship and Social Relations Cr. 3**

How are kinship relations created, transformed, reshaped, and unmade? How do people experience kinship, and what does it mean to be related? How do these processes, experiences, and imaginations vary across space and time? What is the role of kinship studies in anthropology, and how has this changed over the history of the discipline? This course explores these questions through a rigorous analysis of contemporary and historical readings in the anthropological study of kinship and social relations. This course will draw on case studies from the Americas, Europe, Africa, the Middle East, Asia (Central, East, Southeast), and Melanesia. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7605 Seminar in Problems and Concepts in Medical Anthropology Cr. 1-9**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**ANT 7620 Seminar in Anthropology Cr. 3**

Special topics seminar focused on central concepts and theories in anthropology. Exploration of current developments, problems and contemporary research orientations. Topics and sub-field orientation(s) to be announced in Schedule of Classes. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 15 Credits**

**ANT 7625 Material Culture and the Social Meaning of Things Cr. 3**

Our relationship with objects, and various ways of looking at material culture as part of our social world. Understanding and appreciation of the materiality of our lives and the lives of peoples of different cultures. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7630 Seminar in Problems and Concepts in Cultural Anthropology Cr. 2-3**

Central concepts and theories. Current developments, problems and contemporary research orientations. Topics to be announced in Schedule of Classes. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**ANT 7635 Globalization and Culture Cr. 3**

Focuses on the discourse, debates, and practices of globalization from an anthropological perspective. Fast-paced seminar course for graduate students. Topics include: globalization, localization, and anti-globalization; citizenship and belonging; modernity; transnationalism; migration and diaspora; global food systems; consumption and production; popular culture; religion; development; methodological issues in studying global phenomena. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7680 Medical Anthropology Cr. 3**

Core concepts and theoretical approaches, including: aging, life course, childhood, old age, disability, chronic illness, infectious disease, international health, organization of health care institutions, health policy, political economy of health, women's health, reproduction, technology, the body, bioethics, culture and cognition, death and dying, race and ethnicity, violence, sex and sexuality. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ANT 7780 Conceptualizing the Dissertation Cr. 3**

Basic concepts, practices, and skills needed to develop and present a grant proposal for funding. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7900 Synthesis Cr. 3**

Integrative, holistic, and comparative examination of anthropology as the synthesis of diverse analytic perspectives and methodologies. Offered Winter.

**Prerequisites:** ANT 7005 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 7995 Directed Study Cr. 1-9**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**ANT 7998 Field Problem Cr. 1-9**

A research problem which requires field work or intensive and systematic reading of original technical literature. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**ANT 7999 Master's Essay Direction Cr. 3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**ANT 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ANT 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ANT 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ANT 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ANT 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ANT 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ANT 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## APA - Art: Painting

**APA 2000 Oil Painting I Cr. 3**

Traditional materials and methods of oil painting as a means of visual expression. Previous painting experience is not required. Painting from direct observation and imagination. Offered Every Term.

**Prerequisites:** ADR 1050 or ACO 1200

**Fees:** \$30

**APA 2110 Watercolor Painting I Cr. 3**

Methods and materials of transparent watercolor painting. Previous experience with watercolor painting is not required. Compositions based on observation and imagination. Offered Fall, Winter.

**Prerequisites:** APA 2000

**Fees:** \$30

**APA 2130 Introduction to Alternative Painting Media Cr. 3**

Survey of materials and methods of acrylic painting, encaustic painting, pastel painting, as well as collage and mixed media painting. Previous painting experience is not required. Compositions based on observation and imagination. Offered Yearly.

**Prerequisites:** ACO 1200

**Fees:** \$80

**APA 2200 Introduction to Mural Painting Cr. 3**

Introduction to the methods and materials of traditional Buon Fresco painting as well as methods and materials for contemporary mural painting in the community arts context. Offered Fall.

**Prerequisite:** ACO 1200

**Fees:** \$65

**APA 3000 Oil Painting II Cr. 3**

Continued emphasis on structure of painting. Individual development of pictorial, emotional and conceptual aspects of image-making. Offered Every Term.

**Prerequisites:** APA 2000

**Fees:** \$30

**APA 3110 Watercolor Painting II Cr. 3**

Continued experience with watermedia compositions based on observation and/or imagination. Offered Fall, Winter.

**Prerequisites:** APA 2110

**Fees:** \$30

**APA 3130 Figure Painting: Water Media Cr. 3**

Spontaneous and sustained paintings from direct observation of the human figure. Inquiry into the effects of scale, space and emotional responses are encouraged. Offered Yearly.

**Prerequisites:** APA 2110

**Fees:** \$90

**APA 3140 Figure Painting: Oil and Other Media Cr. 3**

Sustained and gestural studies of human figure. Individual responses to scale, space, emotional content. Offered Every Term.

**Prerequisites:** APA 3000

**Fees:** \$90

**APA 4000 Oil Painting III Cr. 3**

Individual development of personal painting ideas through assigned projects and/or student initiative in consultation with instructor. Continued emphasis on formal and expressive aspects of painting. Offered Every Term.

**Prerequisites:** APA 3000

**Fees:** \$30

**APA 5000 Oil Painting IV Cr. 3**

Individual development in painting. Offered Every Term.

**Prerequisites:** APA 4000

**Fees:** \$30

**Repeatable for 6 Credits**

**APA 5060 Advanced Concepts in Drawing and Painting Cr. 3-6**

Emphasis on individual projects using any appropriate medium. Students select subjects and approaches under faculty guidance; may include lectures, demonstrations, off-campus visits. Offered Yearly.

**Prerequisites:** ADR 3070 or APA 4000

**Fees:** \$30

**Equivalent:** APA 7060

**Repeatable for 6 Credits**

**APA 5080 Landscape Painting Cr. 3**

Painting or drawing, as appropriate, outdoors at various urban, suburban and rural sites in metropolitan Detroit area. Students are expected to drive or carpool to locations within an hour of Detroit. Interpretation of landscape subjects through observation and imagination. Offered for undergraduate credit only. Offered Spring/Summer.

**Prerequisites:** APA 2000

**Fees:** \$30

**Repeatable for 6 Credits**

**APA 5100 Contexts of Studio Practice Cr. 3**

Critical inquiry into art issues, past and present, and contemporary studio practices related to painting. Seminar based on visits to museums, galleries, private collections, artists' studios, and optional trips to major art centers such as New York and Chicago. Offered Yearly.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Equivalent:** ADR 5100

**Repeatable for 6 Credits**

**APA 5110 Watercolor Painting III Cr. 3**

Individual work in transparent and/or opaque water-based media. Offered Fall, Winter.

**Prerequisites:** APA 3110

**Fees:** \$30

**Repeatable for 6 Credits**

**APA 5130 Figure Painting Advanced: Water Media Cr. 3**

Individual development in water media based on observation of human figure. Offered Yearly.

**Prerequisites:** APA 3130

**Fees:** \$90

**Repeatable for 6 Credits**

**APA 5140 Figure Painting Advanced: Oil and Other Media Cr. 3**

Individual development based on the human figure using any appropriate medium. Offered Yearly.

**Prerequisites:** APA 3140

**Fees:** \$90

**Repeatable for 6 Credits**

**APA 5160 Advanced Alternative Painting Media Cr. 3**

Individual work in the materials and methods of acrylic painting, encaustic painting, pastel painting, as well as collage and mixed media painting. Offered Fall, Winter.

**Prerequisite:** APA 2130 with a minimum grade of C-

**Fees:** \$80

**Repeatable for 6 Credits**

**APA 5200 Advanced Mural Painting Cr. 3**

Individual work in the materials and methods of Buon Fresco painting and modern mural painting. Offered Fall.

**Prerequisite:** ACO 1200

**APA 5810 Directed Projects: Painting Cr. 3-6**

Self-directed work in consultation with graduate faculty on an arranged basis. Offered Fall, Winter.

**Repeatable for 15 Credits**

**APA 7000 Graduate Oil Painting Cr. 3**

Individual work in oil painting, or other material as appropriate. Offered Every Term.

**Prerequisite:** APA 5000 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the MA in Fine Arts or Master of Fine Arts programs; enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$30

**Repeatable for 9 Credits**

**APA 7060 Graduate Problems in Drawing and Painting Cr. 3-9**

Emphasis on individual projects using any appropriate medium. Students select subjects and approaches under faculty guidance; may include lectures, demonstrations, off-campus visits. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$30

**Repeatable for 15 Credits**

**APA 7080 Landscape Painting Cr. 3**

Painting or drawing, as appropriate, outdoors at various urban, suburban and rural sites in metropolitan Detroit area. Interpretation of landscape subjects through observation and imagination. Students are expected to drive or carpool to locations within an hour of Detroit. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$30

**Repeatable for 15 Credits**

**APA 7110 Graduate Watercolor Painting Cr. 3**

Individual work in transparent and/or opaque water-based media. Offered Fall, Winter.

**Prerequisite:** APA 5110 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$30

**Repeatable for 9 Credits**

**APA 7130 Graduate Problems in Figure Painting: Water Media Cr. 3**

Individual development of images based on the human figure. Offered Yearly.

**Prerequisite:** APA 5130 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 6 Credits**

**APA 7140 Graduate Problems in Figure Painting: Oil Media Cr. 3**

Individual development of images based on the human figure. Offered Yearly.

**Prerequisite:** APA 5140 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 9 Credits**

**APA 8810 MFA Studio: Painting Cr. 3-9**

Extended self-directed work in painting (eighteen to twenty-seven hours per week). Consultation with appropriate graduate faculty on an arranged basis. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Repeatable for 36 Credits**

## APH - Art: Photography

**APH 2400 Introduction to Photography Cr. 3**

Essential technical, conceptual, and artistic problems associated with photography. Exploration of how photography functions as visual language and how a camera works in order to use it as a tool for personal expression. Students must have own digital camera that has access to Aperture/ Shutter Speed/ Manual controls and shoots at least 10 megapixels image. Offered Every Term.

**APH 2410 Black and White Darkroom Photography I Cr. 3**

Introduces darkroom practices, including: black and white analog film processing, printing and presentation. Students must have own film 35 mm or 120 mm medium format film camera. Offered Every Term.

**Prerequisites:** APH 2400

**Fees:** \$180

**APH 2420 Digital Photography I Cr. 3**

Introduces students to the underlying principles, languages and tools of electronic media in relationship to photographic imaging. Students will learn key concepts in digital imaging such as modes of data capture, file management, processing workflow, color management, resolution, non-destructive image processing, film scanning and inkjet printing. A digital camera that shoots RAW images and has access to manual controls is required for this course. Offered Every Term.

**Prerequisites:** APH 2400

**Fees:** \$180

**APH 3410 Darkroom Photography Cr. 3**

This course is an introduction to darkroom practices, including: black and white analog film processing, printing and presentation. Offered Every Term.

**Prerequisites:** APH 2400

**Fees:** \$180

**APH 3420 Digital Photography Cr. 3**

Introduces students to the underlying principles, languages and tools of electronic media in relationship to photographic imaging. Students will learn key concepts in digital imaging such as modes of data capture, file management, processing workflow, color management, resolution, non-destructive image processing, film scanning and inkjet printing. A digital camera that shoots RAW images and has access to manual controls is required for this course. Offered Fall, Winter.

**Prerequisites:** APH 2400

**Fees:** \$180

**APH 4410 Advanced Camera Cr. 3**

In this course, students will learn advanced photographic techniques through the use of large format cameras, sheet film processing, and darkroom and digital printing. Offered Fall.

**Prerequisites:** APH 3410

**Restriction(s):** Enrollment limited to students in a Bachelor of Arts or Bachelor of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$180

**Repeatable for 6 Credits**

**APH 4420 Advanced Printing Cr. 3**

In this course, students will learn advanced photographic printing techniques through the use of large format cameras - including darkroom, digital, and alternative printing skills. Offered Winter.

**Prerequisites:** APH 3410 or APH 3420

**Restriction(s):** Enrollment limited to students in a Bachelor of Arts or Bachelor of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$180

**APH 5410 Photographic Histories and Processes Cr. 3**

This course introduces students to the history of photography and historic photographic processes. It will familiarize the student with the key figures in photographic history and artistic movements throughout its history while giving them hands on experience with antique photographic techniques. Offered Fall.

**Prerequisites:** APH 2400

**Fees:** \$185

**APH 5440 Experimental Photography Cr. 3-6**

Work in non-traditional processes including image and emulsion transfer, hand-applied emulsions, laser copy and xerographic transfer. Offered Every Other Year.

**Prerequisites:** APH 3410

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$180

**Repeatable for 9 Credits**

**APH 5450 Selected Topics in Photography Cr. 3**

Topics to be announced in Schedule of Classes. Offered Yearly.

**Prerequisites:** APH 4410

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$180

**Repeatable for 6 Credits**



**APH 5470 Photography Portfolio and Contemporary Practices Cr. 3**

This course is for upper level photo concentrators in order to bring together advanced skills and ideas about image making. Students are expected to work independently on individual projects with the expectation of it culminating in a body of work. Through group and individual critiques with faculty and visiting artists, readings, discussions, and field trips, students will refine their skills as photographers and learn how to verbally articulate issues in their own work as well as the work of others. Offered Winter.

**Prerequisites:** APH 4410 or APH 4420

**Fees:** \$180

**APH 5850 Directed Projects: Photography Cr. 3-9**

Individual problems. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$180

**Repeatable for 15 Credits**

**APH 5860 Social Documentary: Community, Compassion, and Activism Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Photographic documentation applied to social cause, community representation, and visual/multicultural critical theory. Offered Intermittently.

**Prerequisites:** APH 2400

**Fees:** \$180

**APH 7400 Graduate Photography Cr. 3-9**

Individual problems in advanced photography. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Bachelor of Arts, Bachelor of Fine Arts, Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$180

**Repeatable for 24 Credits**

**APH 8850 MFA Studio: Photography Cr. 3-9**

Extended problems in photography; individual research with eighteen to twenty-seven hours of laboratory per week. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$180

**Repeatable for 36 Credits**

## APR - Art: Printmaking

**APR 2300 Printmaking Cr. 3**

Introduction to a variety of printmaking processes may include the following: lithography, etching, monotype, screenprint, and, relief. Offered Yearly.

**Prerequisite:** ADR 1050 or ACO 1200

**Fees:** \$90

**APR 3470 Photo-Processes for Printmaking I Cr. 3**

Light sensitive printmaking processes are explored, and may include photo-lithography, photo-etching, photo-screen printing, and cyanotypes. Students may create prints utilizing traditional or digital drawing, analog or digital photography, and hybrid techniques. Offered Winter.

**Prerequisite:** ADR 1050 or AGD 2240 or ADA 2220 or APH 2410

**Fees:** \$115

**APR 3480 Intaglio I Cr. 3**

Basic metal plate printing techniques: etching, aquatint, drypoint, soft ground, and lift ground. Offered Fall, Winter.

**Prerequisite:** ADR 1050 or ACO 1200

**Fees:** \$110

**APR 3490 Lithography I Cr. 3**

Fundamentals of stone and plate lithography applying traditional and contemporary techniques of crayon, tusche, and photolithography.

Offered Spring/Summer.

**Prerequisite:** ADR 1050 or ACO 1200

**Fees:** \$110

**APR 3500 Screen Printing I Cr. 3**

Introduction to basic techniques of screen printing. Offered Yearly.

**Prerequisite:** ADR 1050 or ACO 1200

**Fees:** \$110

**APR 3510 Relief and Experimental Printmaking I Cr. 3**

Traditional and contemporary methods of relief printmaking including woodcut and linoleum. Collograph, monoprint, monotype, and experimental methods may be included. Offered Every Term.

**Prerequisites:** ADR 1050 or ACO 1200

**Fees:** \$90

**APR 5470 Photo-Processes for Printmaking II Cr. 3**

Light sensitive printmaking processes are explored, and may include photo-lithography, photo-etching, photo-screen printing, and cyanotypes. Students may create prints utilizing traditional or digital drawing, analog or digital photography, and hybrid techniques. Emphasis on creating a conceptually focused body of work. Offered Winter.

**Prerequisites:** APR 3470

**Fees:** \$115

**Repeatable for 9 Credits**

**APR 5480 Intaglio II Cr. 3**

Further development of intaglio printmaking skills including: range of techniques, color methods, and printing. Emphasis on creating a conceptually focused body of work. Offered Fall, Winter.

**Prerequisites:** APR 3480

**Fees:** \$110

**Repeatable for 9 Credits**

**APR 5490 Lithography II Cr. 3**

Advanced problems in lithography. Black and white, multicolor, transfer methods. Offered Fall, Winter.

**Prerequisites:** APR 3490

**Fees:** \$110

**Repeatable for 9 Credits**

**APR 5500 Screen Printing II Cr. 3**

Further development of screen-printing techniques and printing. Emphasis on creating a conceptually focused body of work. Offered Yearly.

**Prerequisites:** APR 3500

**Fees:** \$110

**Repeatable for 9 Credits**

**APR 5510 Relief and Experimental Printmaking II Cr. 3**

Emphasis on creating a conceptually focused body of work and increased relief technical skills through the practice of multiple block/plate printing, color, large format, unique format, and hybrid techniques. Offered Spring/Summer.

**Prerequisites:** APR 3510

**Fees:** \$90

**Repeatable for 9 Credits**

**APR 7470 Graduate Photo Processes for Printmaking Cr. 3**

Exploration of non-traditional formats and print surfaces. Editioning optional. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$115

**Repeatable for 9 Credits**



**APR 7480 Graduate Intaglio Cr. 3**

Advanced problems in intaglio. Multiplate and rollup color printing. Photo intaglio techniques, experimental media. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$110

**Repeatable for 9 Credits**

**APR 7490 Graduate Lithography Cr. 3**

Advanced work in lithography. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$110

**Repeatable for 6 Credits**

**APR 7500 Graduate Serigraphy Cr. 3**

Advanced work in serigraphy. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$110

**APR 7510 Graduate Relief and Experimental Printmaking Cr. 3**

Traditional relief methods: woodcut, wood engraving, linocut; also monoprint and monotype, constructed prints, other experimental approaches. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 15 Credits**

**APR 8840 MFA Studio: Printmaking Cr. 3-9**

Extended problems in printmaking; individual research with eighteen to twenty-seven hours of laboratory per week. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$100

**Repeatable for 36 Credits**

## ARB - Arabic

**ARB 1010 Elementary Arabic I Cr. 4**

Vocabulary, forms, syntax, graded readings. Offered Every Term.

**Fees:** \$5

**ARB 1020 Elementary Arabic II Cr. 4**

Continuation of ARB 1010. Offered Every Term.

**Prerequisites:** ARB 1010 with a minimum grade of D-

**Fees:** \$5

**ARB 2010 Intermediate Arabic I Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Continuation of grammar, readings in classical and modern prose. Offered Every Term.

**Prerequisites:** ARB 1020 with a minimum grade of D-

**Fees:** \$5

**ARB 2020 Intermediate Arabic II Cr. 4**

Continuation of ARB 2010. Offered Winter.

**Prerequisites:** ARB 2010 with a minimum grade of D-

**Fees:** \$5

**ARB 3010 Business Arabic Cr. 3**

Introduces learners of Arabic to language functions associated with business and travel. Communication for immediate use; emphasis on educated spoken Arabic. Situational dialogues built around units to address topics related to business such as job interview, airplane ticket purchase, and the like. Offered Winter.

**Prerequisites:** ARB 2010 with a minimum grade of D-

**ARB 3110 Advanced Arabic I Cr. 3**

Third year Arabic language course: advanced Arabic grammar, complexities of sentence construction in various styles (literary, political, and scientific texts; written media; business correspondence). Offered Fall, Winter.

**Prerequisites:** ARB 2020 with a minimum grade of D-

**ARB 3120 Advanced Arabic II Cr. 3**

Completion of ARB 3110; variations between classical Arabic and modern standard Arabic. Offered Fall, Winter.

**Prerequisites:** ARB 3110 with a minimum grade of D-

**ARB 3210 Spoken Arabic Cr. 3**

Introduction to authentic spoken Arabic. Language of everyday life; phonology and script. Communication for immediate use. Offered Fall.

**Prerequisites:** ARB 1020 with a minimum grade of D-

**Repeatable for 9 Credits**

**ARB 3300 Conversation and Composition Cr. 3**

Functional usage of language and communication in context. Critical essays written about topics discussed in class to improve writing skills. Offered Fall, Winter.

**Prerequisites:** ARB 2010 with a minimum grade of D-

**ARB 3990 Directed Study Cr. 3-6**

Readings, periodic reports and consultations. Offered Every Term.

**Repeatable for 9 Credits**

**ARB 5010 Medieval Arabic Texts Cr. 3**

Reading and translation of Arabic Medieval texts. Literature, language, religion and biography. Offered Yearly.

**Prerequisites:** ARB 2010 with a minimum grade of D-

**ARB 5020 Media Arabic Cr. 3**

Language pertinent to media communications: written, visual and audio material. Background in origin and development of journalism in the Arab world. Current major newspapers and magazines used as basic reading materials. Offered Winter.

**Prerequisites:** ARB 2020 with a minimum grade of D-

**ARB 5100 Teaching of Arabic as a Foreign/Second Language (TAFL) Cr. 3**

Theoretical and conceptual framework of second language learning. Proper training in pedagogy as related to learning Arabic as a foreign/second language. Offered Yearly.

**Equivalent:** NE 5100

**ARB 5130 Classical Arabic Literature in Translation Cr. 3**

From pre-Islamic period (Jahiliya) to the downfall of the Umayyad dynasty in Andalusia (1492). Offered Every Other Year.

**ARB 5140 Modern Arabic Literature in Arabic and English Cr. 3**

Literature and culture of Arab Nahda period (Renaissance beginning in nineteenth century), down to the present. Fiction, drama, biography, poetry. Course is offered in both Arabic and English. Offered Yearly.

**ARB 5210 Arabic Sociolinguistics Cr. 3**

Arabic dialectology; Arabic as a minority language in contact. Theories and techniques developed outside Arabic, and their applicability to Arabic situations. Offered Fall.

**Equivalent:** LIN 5210, NE 5210

### **ARB 5230 Structure of Arabic Cr. 3**

Survey of historical constitution and theoretical structure of Arabic. Offered Yearly.

**Equivalent:** LIN 5230, NE 5230

### **ARB 5240 Quranic Arabic Cr. 3**

Structures and functions of the language of the Quran. It introduces linguistic, textual, cultural, and aesthetic aspects of this language from the perspective of medieval and modern scholars of Arabic. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

### **ARB 5300 Arabic Grammar in Practice Cr. 3**

This course is a capstone of the language training in the Arabic program. It is an advanced, hands on and in-depth grammatical and textual analysis of Arabic oral and written text production across genres, modes and historical periods. Students will be trained on recognizing and analyzing texts grammatically from the different periods and genres of Arabic and from different written, audio and new media. They will also practice reproducing these structures by means of drills, exercises and sound clips. Offered Every Other Year.

### **ARB 5700 Arabic for Healthcare Professions Cr. 3**

General review of pertinent grammar and specific vocabulary groups relating to specific tasks in the health care professions. Discussions leading to cultural competencies. Exploration of cultural and social factors for communicating with Arabic-speaking patients. Offered Winter.

**Prerequisites:** ARB 2010 with a minimum grade of D-

### **ARB 5990 Directed Study Cr. 1-3**

Readings; periodic consultations and reports. Offered Every Term.

**Repeatable for 9 Credits**

### **ARB 6700 History of Arabic Cr. 3**

History of the evolution of Arabic. Data from phonetics/phonology and morpho-syntax will form the basis of study. Offered Fall.

**Equivalent:** LIN 6700

### **ARB 7100 Introduction to Translation Studies Cr. 3**

Introduction to Translation Studies presents the essential theories as tools to deal with the significant practical problems and issues that may confront the practitioner in specialized translation. The class will focus on the following points: 1) acquisition of the basics of translation theory in order to facilitate the comprehension of translation's multidisciplinary processes and be aware of the variety of theoretical approaches, 2) the study and evaluation of primary methods of research to enhance future research and practices, 3) the acquisition of necessary metalanguage, which allows the textual analysis of the translation process, the solution driven mind of a translator, the approach to tackle recurring translation problems, and the evaluation of translated texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** CLA 7100, FRE 7100, GER 7110, ITA 7100

## **ARM - Armenian**

### **ARM 3410 New Soil, Old Roots: The Immigrant Experience Cr. 3**

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry  
Armenian, German, Jewish, Polish, Russian and Ukrainian immigration to the United States, its effects on the cultures (language, literature, religion, politics, music, art and theatre) of these ethnic groups and its influence upon American life. Offered Fall.

**Equivalent:** GER 3410, POL 3410, RUS 3410, SLA 3410

## **ART - Art Courses**

### **ART 0890 MFA Progress Review Cr. 0**

Students present to their MFA committee members the culmination of all work created over the course of the semester, including any written material/research projects. Visiting artist or critic is invited for this review. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Art; enrollment is limited to Graduate level students.

**Repeatable for 0 Credits**

### **ART 0892 MFA Assessment Review Cr. 0**

Students formally present to their MFA committee members the culmination of all work created over the course of the semester, including any written material/research projects. A 500-word artist statement is required and must be submitted to committee members 1 week prior to reviews. (Visiting artist or critic invited for this review). Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Art; enrollment is limited to Graduate level students.

**Repeatable for 0 Credits**

### **ART 8990 Graduate Seminar Cr. 3**

Graduate Seminar is a topical lecture course. This course rotates thematically: Professional Practice, Art Theory and Critical Practice, and Creative Practice. MFA students must successfully complete 3 seminar courses, covering each topic. This course may be taken as an elective for MA students. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Art; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree.

**Repeatable for 9 Credits**

### **ART 8992 Graduate Studio Cr. 3**

This interdisciplinary studio course focuses the production and critique of visual art. It is an ongoing discussion of individual work with special reference to current issues, theories, and concerns in contemporary art as applied to students visual artwork. Students will be required to produce work and writing, and present and discuss that work in an interdisciplinary context. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Art; enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

### **ART 8994 Graduate Hours Cr. 1-3**

An intensive studio course focusing on independent projects and self-directed research in consultation with chosen faculty member. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Art; enrollment is limited to Graduate level students.

**Repeatable for 20 Credits**

### **ART 8996 MFA Thesis Cr. 1-4**

MFA Thesis is a capstone course to be taken in the final two semesters of an MFA student's degree program. Students will create a body of work to be shown in a culminating solo exhibition in the Art Department Gallery or other appropriate venue. To accompany the exhibition, students must produce a written thesis document and submit an image portfolio. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Art; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

# ASE - American Sign Language

## ASE 2050 Deaf Culture Cr. 3

**Satisfies General Education Requirement:** Cultural Inquiry

This course is to introduce students to the most important aspects of the American Deaf experience with history, contributions, and contemporary lives of Deaf people. This course will address topics such as the diversity of Deaf people, Deaf cultural norms, controversial issues, Deaf arts, and Deaf international communities. Offered Fall.

## ASE 3000 American Sign Language I Cr. 3

This course is an introduction to American Sign Language (ASL). ASL will be taught through four categories: cultural awareness, grammatical features, vocabulary development and conversational skills. Students will develop mastery of targeted vocabulary, conversational facilitating behaviors, and conversational regulating behaviors. Offered Every Term.

## ASE 3020 American Sign Language II Cr. 3

This is the second in a series of courses designed to further the development of comprehension and production abilities in American Sign Language (ASL). Lessons are designed around recognition and demonstration of more sophisticated grammatical features of ASL with focus on increasing fluency and accuracy. Cultural awareness of the Deaf communities of the world are also instilled. Offered Every Term.

**Prerequisite:** ASE 3000 with a minimum grade of C-

## ASE 3030 American Sign Language III Cr. 3

This is the third in a series of courses designed to further develop comprehension and production abilities in American Sign Language (ASL). Lessons are designed around recognition and demonstration of more sophisticated grammatical features of ASL with focus on increasing fluency and accuracy. Cultural awareness of the Deaf communities of the world are also instilled. Offered Fall.

**Prerequisite:** ASE 3000 with a minimum grade of C- and ASE 3020 with a minimum grade of C-

## ASE 3040 American Sign Language IV Cr. 3

This is the fourth in a series of courses designed to further development of comprehension and production abilities in American Sign Language (ASL). Lessons are designed around recognition and demonstration of more sophisticated grammatical features of ASL with focus on increasing fluency and accuracy. Cultural awareness of the Deaf communities of the world are also instilled. Offered Winter.

**Prerequisite:** ASE 3030 with a minimum grade of C-

## ASE 5050 Deaf Culture Cr. 3

This course is to introduce students to the most important aspects of the American Deaf experience with history, contributions, and contemporary lives of Deaf people. This course will address topics such as the diversity of Deaf people, Deaf cultural norms, controversial issues, Deaf arts, and Deaf international communities. Offered Yearly.

## ASE 5060 Fingerspelling and Numbers Cr. 3

This course is to provide an overview of American Sign Language fingerspelling techniques and numbering skills, focusing on improving students' receptive and expressive skills. Students that take this course will be able to communicate with speed, dexterity and clarity. Offered Yearly.

**Prerequisites:** ASE 3000 with a minimum grade of C-

## ASE 5070 Non-Manual Grammatical Features of American Sign Language Cr. 3

This course focuses on specific facial manipulations that are crucial grammatical component of American Sign Language (ASL) such as lexical, morphological, and syntactical non-manual signals construction by the mouth, cheeks, eyes, brows, head, and shoulders. Offered Fall.

**Prerequisites:** ASE 3020 with a minimum grade of C-

# ASL - Art: Sculpture

## ASL 2150 Beginning Sculpture Cr. 3

Instruction in traditional techniques and concepts of sculpture including modeling the figure from observation using clay, moldmaking, carving, construction, and casting. Lectures, demonstrations, critiques. Offered Every Term.

**Fees:** \$115

## ASL 3150 Intermediate Sculpture Cr. 3

Contemporary concerns in sculpture. Idea, scale, site, light, movement, and serial forms. Offered Every Term.

**Prerequisites:** ASL 2150 and (ADR 1050, ACO 1200, ACO 1230, or ACO 1270)

**Fees:** \$90

## ASL 3170 Figurative Sculpture I Cr. 3

Instruction in traditional, representational, figurative sculpture. Historical examples, concepts and techniques. Basic anatomy, observation, modeling, gesture, proportion, plane, volume, mass, texture, portraiture; use of calipers, armatures, and moldmaking. Carving, construction, and casting are optional. Offered Fall.

**Prerequisites:** ASL 2150 and (ADR 1050, ACO 1200, ACO 1230, or ACO 1270)

**Fees:** \$90

## ASL 3190 Sculpture Foundry I Cr. 3

Creation of sculpture using metal. Bonded-sand and investment casting using bronze and aluminum; chasing and patinas; oxy-acetylene, stick, mig, and tig welding; plasma cutting. Offered Yearly.

**Prerequisites:** ASL 2150 and (ADR 1050, ACO 1200, ACO 1230, or ACO 1270)

**Fees:** \$115

## ASL 3200 Wood Shop Practice I Cr. 3

This course explores the tools, machinery, and commonly used materials common to the wood shop environment. Processes suitable for studio art, craft, and design practices are introduced. Problem solving ability and technical skill range are built through exercises introducing ordered sequences of tool use and material handling. Offered Every Other Year.

**Prerequisites:** ACO 1200, ACO 1230, ACO 1270, or ADR 1050

**Fees:** \$150

## ASL 3300 Moldmaking I Cr. 3

This course examines moldmaking and casting materials and processes suitable for studio art, craft, and design scaled practice. Problem solving ability and technical skill range are built through exercises introducing various moldmaking techniques and materials. Offered Every Other Year.

**Prerequisites:** ADR 1050, ACO 1200, ACO 1230, or ACO 1270

**Fees:** \$175

## ASL 5150 Advanced Sculpture Cr. 3

Development of personal and professional body of work. Discussions, lectures, assignments. Offered Every Term.

**Prerequisites:** ASL 3150

**Fees:** \$90

**Repeatable for 9 Credits**

## ASL 5170 Figurative Sculpture II Cr. 3

Emphasis on advanced and self-directed problems in figurative sculpture. Offered Yearly.

**Prerequisites:** ASL 3170

**Fees:** \$90

**Repeatable for 9 Credits**

**ASL 5180 Sculpture: Advanced Technology Cr. 3-6**

One major project, which explores the application of non-traditional materials and technologies: research, industrial liaisons, equipment.

Offered Intermittently.

**Prerequisites:** ASL 5170

**Fees:** \$200

**Repeatable for 12 Credits**

**ASL 5190 Sculpture Foundry II Cr. 3**

Development of ideas and skills using either casting or fabrication or both. Offered Yearly.

**Prerequisites:** ASL 3190

**Fees:** \$115

**Repeatable for 9 Credits**

**ASL 5200 Wood Shop Practice II Cr. 3**

This course explores the tools, machinery, and commonly used materials common to the wood shop environment. Processes suitable for studio art, craft, and design practices are examined. Problem-solving ability and technical skill range are expanded through exercises introducing advanced ordered sequences of tool use and material handling. Offered Every Other Year.

**Prerequisites:** ASL 3200

**Fees:** \$150

**Repeatable for 9 Credits**

**ASL 5300 Moldmaking II Cr. 3**

This course examines advanced studio moldmaking practices suitable for studio art, craft, and design scaled practice. Problem solving ability and technical skills are enhanced through the application of various moldmaking techniques and materials to advanced moldmaking problems. Offered Every Other Year.

**Prerequisites:** ASL 3300

**Fees:** \$175

**Repeatable for 9 Credits**

**ASL 5810 Special Topics in Sculpture Cr. 3**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** ADR 1050, ACO 1200, ACO 1230, or ACO 1270

**Fees:** \$90

**Repeatable for 9 Credits**

**ASL 5820 Directed Projects Cr. 3-6**

Independent projects done in consultation with instructor. Offered Fall, Winter.

**Fees:** \$90

**Repeatable for 9 Credits**

**ASL 7150 Graduate Sculpture Cr. 3**

Graduate-level problems. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts or Master of Fine Arts degrees; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 9 Credits**

**ASL 8820 MFA Studio: Sculpture Cr. 3-9**

Extended problems in sculpture; individual research with eighteen to twenty-seven hours of laboratory per week. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Art, Art History, and Design.

**Fees:** \$90

**Repeatable for 36 Credits**

## ASN - Asian Studies

**ASN 1700 East Asia to the 1700s Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry

From antiquity to the 1700s; emphasis on political, economic, social, and cultural developments in China, Japan, and Korea, and the nature and impact of their interactions. Offered Intermittently.

**Equivalent:** HIS 1700

**ASN 1710 History of Modern East Asia Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Historical Studies, Social Inquiry

From beginning of nineteenth century to the present; emphasis on political, social and economic developments in China, Japan and Korea. Offered Yearly.

**Equivalent:** HIS 1710

**ASN 2500 Introduction to Asian American Studies Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

This course will provide an overview of the historical and contemporary experiences of Asian Americans and Asian migrants in the United States.

We will examine major themes, including race and racism, exclusion and assimilation, ethnic and pan-ethnic identities and communities, intersectionality and comparative racialization, as well as activism and social movements. We will analyze these themes within the broad dynamics of empires, wars, globalizations, migrations, and the making of the U.S. as a nation-state and a global power. Offered Yearly.

**Equivalent:** TED 2500

**ASN 2800 Culture Studies in Japan (Homestay and Study Abroad Tour) Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry

Survey of Japanese culture taught in English. Introduction of family and group organization, customs, pop culture (fashion/music/films), aspects of daily lives (thought/religion/arts/society), and a brief modern history. Also, survival language practice. Offered Spring/Summer.

**Prerequisites:** JPN 1010 with a minimum grade of D-

**Equivalent:** JPN 2800

**ASN 3870 History of Japanese Pop Culture Cr. 3**

Explores the history of Japanese pop culture and its global spread, with both an emphasis on historical influences, intended messages, and appeal in Japan and around the world, and examination of manga, anime, video games, sports, fashion, literature, music, film, and food. Offered Every Other Year.

**Equivalent:** HIS 3870

**ASN 3995 Special Topics in East Asian Studies Cr. 3**

Special topics in Asian Studies language, literature, or culture. Offered Yearly.

**Repeatable for 6 Credits**

**ASN 5000 Space and Everyday Life in Chinese Literature and Film Cr. 3**

This course explores spaces and everyday practices within these spaces represented in Chinese literature, film, as well as art. We will primarily focus on everyday life from early modern China through modern times, discussing the interactions among spaces, practices of daily life, and literary as well as cinematic representations. A knowledge of modern Chinese is not required. Offered Every Other Year.

**Equivalent:** CHI 5000

**ASN 5825 Readings in the History of Modern China Cr. 4**

From early 1600s to the present; political, economic, and social changes. Offered Every Other Year.

**Equivalent:** HIS 5825



**ASN 5855 Pre-Modern Japan Cr. 4**

Japanese history from its mythical origins to early nineteenth century; political, economic, social, cultural developments. Offered Every Other Year.

**Equivalent:** HIS 5855

**ASN 5865 Modern Japan Cr. 4**

Japanese history from the early nineteenth century to the present; emphasis on political, economic, and social developments. Offered Yearly.

**Equivalent:** HIS 5865

**ASN 5875 Gender in Modern East Asia Cr. 4**

History of gender in China, Japan, and Korea, with topics to include Confucianism, the state's role in gender construction, nationalism, imperialism, marriage, family, labor, sexuality, and feminism. Offered Every Other Year.

**Equivalent:** GSW 5875, HIS 5875

**ASN 5993 Writing Intensive Course in Asian Studies Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplined writing assignments under the direction of a faculty member. Must be selected in conjunction with a designated corequisite. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

## AST - Astronomy

**AST 1010 Discovering the Universe Cr. 1**

This is a first-year astronomy laboratory course designed to introduce and explore the field of astronomy. We will discuss current hot topics throughout astronomy, and explore data from observatories including Wayne State's robotic Zowada Observatory, as well as NASA missions. It is intended for astronomy majors and minors or those considering an astronomy major or minor. Offered Yearly.

**AST 2010 Descriptive Astronomy Cr. 4**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

Lecture course that introduces the concepts and methods of modern astronomy, the solar system, stars, galaxies, and cosmology; recent discoveries about planets, moons, the sun, pulsars, quasars, and black holes. Meets General Education Laboratory requirement only when taken with Coreq: AST 2011. Offered Every Term.

**AST 2011 Descriptive Astronomy Laboratory Cr. 1**

Laboratory exercises and observations; includes two late evening viewing sessions. Satisfies General Education Laboratory requirement when taken concurrently with AST 2010. Offered Every Term.

**Prerequisites:** AST 2010 with a minimum grade of C (may be taken concurrently), AST 5010 with a minimum grade of C (may be taken concurrently), or PHY 5010 with a minimum grade of C (may be taken concurrently)

**Fees:** \$25

**AST 2030 Life in the Universe Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Quantitative Experience Comp

Are we alone in the Universe? In the last three decades astronomers have discovered thousands of planets around stars other than our own Sun. Which of those planets might have the right conditions to harbor life? In this course we will discuss the emerging field of astrobiology. We will explore the conditions needed for life, where in the Universe might have those conditions, and how scientists are searching for planets and signs of life elsewhere in the Universe. Offered Fall, Winter.

**AST 4100 Astronomical Techniques Cr. 3**

Techniques of modern astrophysics. Detectors used in astronomy for optical and infrared photons, radio and microwaves, X- and gamma rays, and neutrinos. Techniques in imaging, photometry, spectroscopy, astrometry, polarimetry, and for analyzing public data available on the web. Offered Fall.

**Prerequisites:** PHY 2180 with a minimum grade of C- and PHY 2181 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**AST 4200 Astronomical Laboratory Cr. 2**

**Satisfies General Education Requirement:** Writing Intensive Competency Introduction to laboratory techniques of modern astrophysics. Optical astronomy, including measurement of the quantum efficiency of a CCD-based astronomical digital camera; measurement of the throughput as a function of wavelength of a set of standard astronomical filters; measurement of the HR diagram of a star cluster using the calibrated camera and filters. Offered Fall.

**Prerequisites:** AST 4100 with a minimum grade of D-

**Fees:** \$25

**AST 4300 Planetary Astronomy and Space Science Cr. 3**

Formation and evolution of the solar system: planetary surfaces, interiors, atmospheres, and magnetospheres; asteroids, comets, planetary satellites, and ring systems. Emphasis on using basic physics to understand observed properties of the solar system. Offered Winter.

**Prerequisites:** PHY 2180 with a minimum grade of C- and PHY 2181 with a minimum grade of C-

**AST 5010 Astrophysics and Stellar Astronomy Cr. 3**

Electromagnetic radiation and matter; solar characteristics; stellar distances; magnitudes; spectral classification; celestial mechanics; binary stars; stellar motions, structure and evolution; compact and variable stars; Milky Way Galaxy and interstellar medium; galaxies and clusters of galaxies; quasars; Hubble's Law; cosmology. Offered Every Other Winter.

**Prerequisites:** (PHY 2140 with a minimum grade of C- or PHY 2180 with a minimum grade of C-) and MAT 2010-6XXX with a minimum grade of C-

**Equivalent:** PHY 5010

**AST 5100 Galaxies and the Universe Cr. 3**

Exploration of the world of galaxies, starting with the Milky Way and moving outward to larger scales. Basic properties of galaxies: galaxy classification, structure, evolution, observations of Active Galactic Nuclei (AGN), Quasar, and Seyfert galaxies. Discovery of dark matter and black holes. Cosmology: origins of the universe in a hot big bang; its expansion history including recent evidence that the cosmic expansion is accelerating; the cosmic microwave background, and the ultimate fate of the universe. Capstone course for astronomy majors. Offered Winter.

**Prerequisites:** PHY 3300 with a minimum grade of C-

**AST 6080 Survey of Astrophysics Cr. 3**

This course provides an introduction to high-energy astrophysics with a focus on X-ray astronomy. We will cover the physics of X-ray emission and absorption in an astrophysical context, as well as discussing observational techniques used to detect X-rays. Bright X-ray emitting objects are some of the most extreme in the universe, and we will discuss objects including neutron stars, black holes, cataclysmic variables, supernovae and supernovae remnants, and galaxy clusters. Offered Every Other Year.

**Prerequisites:** PHY 6080 with a minimum grade of C-

**Equivalent:** PHY 6080

## AT - Art Therapy

**AT 6300 Explorations in Art Therapy Cr. 3**

Provides an introduction to art therapy, its history and development, and major approaches. Offered Yearly.



**AT 6320 Art Therapy: Introduction and Ethics Cr. 3**

Introduction to and ethics of art therapy practice. For graduate students enrolled in the Art Therapy Program. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**AT 6340 Theory of Art Therapy Cr. 3**

Slide lectures, studio experiences, assigned readings, discussions, and critical evaluations in the history and literature of art therapy and closely-related fields. Offered Yearly.

**AT 6360 Aspects of Art Therapy Cr. 1**

Aspects of the use of art therapy chosen to develop students' breadth or depth in art therapy practice with various groups and settings. Offered Yearly.

**Repeatable for 12 Credits**

**AT 7000 Research in Art Therapy Cr. 3**

Skill development in the three primary areas: information access through the variety of resources available in a university library; comprehension and evaluation of technical literature; employment of APA style in technical writing. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AT 7300 Studio Art Therapy Cr. 3**

This studio experience will explore a holistic, arts-based approach to the therapeutic process. Because art therapy begins with the art therapist, a focus is placed on actively developing personal and professional identity through one's own artwork. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**AT 7310 Art Therapy with Groups Cr. 3**

Therapeutic factors of groups; facilitation of art therapy groups. Offered Winter.

**Prerequisites:** AT 6320 with a minimum grade of C and AT 6340 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**AT 7330 Art Therapy with Children and Adolescents: Assessment and Practice Cr. 3**

Slides, lectures and studio experiences relating to the research, theory and practices of art therapy with children. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**AT 7340 Art Therapy with Adults and Families: Assessment and Practice Cr. 3**

This course offers an in-depth presentation of theory, practice, and assessment with adults and families. Emphasis is on the student developing knowledge of art therapy assessment techniques. The student will also begin to develop treatment skills to be used with clinical adult populations, including families, addictions and trauma. Areas to be covered include use of appropriate art assessments with adults, families and groups; types of assessment techniques available to art therapists; interpretation of the art produced during the assessment; and use of this knowledge in treatment. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**AT 7380 Art Therapy Practicum Cr. 3**

Art Therapy practicum experience with children, adults, groups, individuals. Includes: assessment, treatment planning, session facilitation, written case summary and case study presentation. Offered Yearly.

**Prerequisite:** AT 6320 with a minimum grade of C and AT 6340 with a minimum grade of C and AT 7310 with a minimum grade of C and AT 7340 with a minimum grade of C and AT 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**AT 7500 Cultural and Social Diversity in Art Therapy Cr. 3**

The course provides art therapy and counseling students with discipline-specific experiences, current theoretical perspectives, and best practices to develop culturally appropriate, collaborative, and productive therapeutic relationships with clients and enhance the effectiveness of their work in diverse and multicultural therapeutic environments. Students will recognize the impact of oppression, prejudice, discrimination, and privilege on access to mental health care and develop responsive practices that include empowerment, advocacy, and social justice action. Additionally, students will integrate new knowledge of cultural diversity, micro#aggressions, long#term effects of historical oppression, and common cultural beliefs and practices into students' daily and professional interactions with others, enabling effective professional practice within our multicultural society, classrooms, and therapeutic settings. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Education.

**AT 7890 Art Therapy Internship Cr. 1-6**

Supervised internship in the practice of art therapy with individuals, groups and/or families. Students complete internship hours at predetermined site(s) off campus, and participate in on-campus seminars and individual supervision. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**AT 7999 Art Therapy Master's Project and Specialization Cr. 3**

This course provides students with the opportunity to integrate knowledge in their field using art-based and other established research methods, innovative methods of inquiry, clinical practice, or a synthesis of these methods. An original culminating research project produced in this course offers an opportunity for specialization and furthers students' professional goals. Offered Yearly.

**Prerequisite:** AT 7000 with a minimum grade of C or EER 7640 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

## ATR - Athletic Training

**ATR 5110 Pathophysiology of Sports Injuries Cr. 3**

Explores musculoskeletal sports injury from a pathophysiological and pathomechanical perspective. The effects of acute trauma and repetitive stress on the musculoskeletal system are examined. Additionally, the pathophysiology of sports related concussion is explored. Cumulative emphasis is placed on the evaluation process contributing to the foundational level of differential diagnosis. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Athletic Training.

**ATR 5115 Acute Care of Athletic Injuries Cr. 3**

Students will develop an understanding of fundamental clinical practice concepts utilized by athletic trainers in the prevention, recognition, treatment and disposition of acute athletics-related illnesses and injuries. Emphasis is placed on the implementation of the emergency action plan and on-field/on-site assessment. Students will cultivate practical skills necessary for emergent care while developing the foundational level of differential diagnosis for acute injury/and illness. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Athletic Training.

**Fees:** \$30

**ATR 5125 Orthopedic Assessment Cr. 3**

Addresses assessment of musculoskeletal and orthopedic related impairments and injury. Focuses on the evaluation process and diagnostic procedures associated with clinical reasoning and the development of differential diagnosis for clinical application. Offered Fall.

**Prerequisite:** ATR 5110 with a minimum grade of C and ATR 5115 with a minimum grade of C

**ATR 5130 Therapeutic Interventions I Cr. 3**

A lecture and lab experience, focused on the principles and procedures for the selection and application of physical agents and mechanical techniques, essential for the management of musculoskeletal injury and/or dysfunction. Evidence-based practice (EBP) will be integrated throughout the course to enhance the development of treatment plans and clinical application. Offered Fall.

**ATR 5135 Evidence-Based Practice in Athletic Training Cr. 3**

Introduces the concepts of evidence-based medicine and provides the student with information on how evidence-based medicine can affect the clinical practice of athletic training and enhance the care given to patients. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Athletic Training.

**ATR 5140 Clinical Gross Anatomy Cr. 3**

Comprehensive review of human anatomy as it pertains to athletic training clinical practice. Students will develop an understanding of human anatomy and its relationship to etiology, evaluation, diagnosis, treatment, and rehabilitation of various medical conditions. Course content will emphasize, but is not limited to, the muscular, skeletal, nervous, and vascular systems. Prosected human cadavers, plastinated specimens, anatomical models, and computerized software/imaging will be used as instructional methods. Offered Winter.

**Fees:** \$220

**ATR 5145 Therapeutic Interventions II Cr. 3**

Provides conceptual and practical application of therapeutic interventions addressing musculoskeletal and orthopedic related conditions. Students will determine therapeutic intervention care plans consistent with patient-centered functional outcomes. Specific emphasis will be placed on therapeutic and corrective exercise. Offered Winter.

**ATR 5149 Pre-Season Integrative Experience I Cr. 1**

Provides a clinical experience designed to satisfy the clinical education requirements for professional athletic training program. As a part of this experience, students will be supervised by a preceptor at an approved clinical site. Specific emphasis will be placed on taping, wrapping, pathology recognition, first aide, and acute injury management. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Athletic Training.

**Fees:** \$50

**ATR 5150 Integrative Experience in Athletic Training I Cr. 4**

Provides a clinical experience designed to satisfy the clinical education requirements for a professional level AT curricular program. As a part of this experience, students will be supervised by a preceptor at an approved clinical site. Specific emphasis will be placed on taping and bracing techniques, acute care of athletic injuries and the injury evaluation process. Clinical skill integration and competency completion appropriate for current level of didactic coursework and clinical integration will be assessed. Offered Fall.

**Prerequisite:** ATR 5149 with a minimum grade of C

**Fees:** \$50

**ATR 5151 Integrative Experience in Athletic Training II Cr. 4**

Provides a clinical experience designed to satisfy the clinical education requirements for a professional level AT curricular program. As a part of this experience, students will be supervised by a preceptor at an approved clinical site. Specific emphasis will be placed on orthopedic evaluation, the clinical diagnosis process and the clinical application of therapeutic modalities. Clinical skill integration and competency completion will be assessed. Offered Winter.

**Fees:** \$50

**ATR 5159 Pre-Season Integrative Experience II Cr. 1**

Students will engage in a second-year clinical experience, participating in a pre-season training camp. The experience will be designed to increase clinical competence concurrent with didactic material. This course provides a clinical field experience emphasizing progressive athletic training skills and procedures. As part of this experience, students will be assigned to a preceptor at an appropriate clinical site. Students will be assigned to intercollegiate, interscholastic, or professional sports organizations, rehabilitation facilities, or other health care facilities. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Athletic Training.

**Fees:** \$50

**ATR 5215 Medical and Pharmacologic Interventions Cr. 3**

This course will explore a systems approach to clinical medicine, to include pathology and pharmacology management of injury and illness commonly encountered in athletic training professional practice. Knowledge of medical examination, patient monitoring, and standard techniques and procedures as applied to clinical decision making and risk-reduction will be advanced. Offered Spring/Summer.

**Prerequisite:** ATR 5130 with a minimum grade of C and ATR 5145 with a minimum grade of C

**ATR 5225 Organization and Administration in Athletic Training Cr. 3**

Students will be acquainted with the proper organization and management techniques utilized by certified athletic trainers in health care administration of athletic training programs. Offered Fall.

**Prerequisite:** ATR 5140 with a minimum grade of C and ATR 5145 with a minimum grade of C and ATR 5215 with a minimum grade of C

**ATR 5230 Transition to Practice Cr. 3**

Students will engage in a comprehensive review of the athletic training curriculum in preparation for the national credentialing examination required for professional practice. Emphasis will be placed on effective strategies and preparation for transitioning to employment as an athletic trainer. Additionally, students will gain exposure to the history, rationale, and clinical implementation for a variety of contemporary interventions practiced in the professional setting. Offered Winter.

**Prerequisite:** ATR 5151 with a minimum grade of C

**Corequisite:** ATR 5252

**ATR 5250 Interprofessional Practice Experience Cr. 2**

Students will be exposed to clinical experiences within various health care settings and areas of medicine (e.g., emergency rooms, surgery, primary care/general medicine, dermatology, etc.). In addition, the clinical experiences will foster interprofessional practice by including interactions and collaborations with other health care professions.

As part of this experience, students will be supervised by a preceptor at an approved clinical site. Specific emphasis will be placed on interprofessional practice, patient/practitioner interactions, and communication. Offered Spring/Summer.

**Prerequisite:** ATR 5151 with a minimum grade of C

**Corequisite:** ATR 5215

**ATR 5251 Integrative Experience in Athletic Training III Cr. 4**

Provides a clinical experience designed to satisfy the clinical education requirements for a professional level AT curricular program. As a part of this experience, students will be supervised by a preceptor at an approved clinical site. Specific emphasis will be placed on the clinical application of therapeutic rehabilitation/exercise, manual therapies, treatment and management of dislocations, general medical conditions/evaluation/diagnosis/treatment, concussion evaluation/diagnosis/management, and sport performance and injury prevention. In addition, simulations will be used as an instructional strategy to advance clinical skill acquisition, expose students to various pathologies and conditions, and assess competence. Clinical skill integration and competency completion will be assessed. Offered Fall.

**Prerequisite:** ATR 5140 with a minimum grade of C and ATR 5145 with a minimum grade of C and ATR 5215 with a minimum grade of C

**Fees:** \$50

**ATR 5252 Clinical Immersion in Athletic Training Cr. 6**

Provides a clinical experience designed to satisfy the clinical education requirements for an accredited professional level AT curricular program. In particular, the course will be associated with a 12-week clinical immersion where the student is assigned to a preceptor at an approved clinical site. The purpose of the clinical immersion is to provide students with a real-world depiction of athletic training to prepare them for employment. In addition, simulation examinations will be used as an instructional strategy to advance clinical skill acquisition, expose students to various pathologies and conditions, and assess competence. Offered Winter.

**Fees:** \$50

## AUD - Audiology

**AUD 5400 Introduction to Audiology Cr. 3**

Introduction to physics of sound, anatomy of the hearing mechanism, audiometry, hearing aids, habilitation and rehabilitation of the hearing handicapped. Offered Fall, Winter.

**AUD 5420 Introduction to Aural Rehabilitation Cr. 3**

Principles and practices of aural rehabilitation including hearing aids. Offered Winter, Spring/Summer.

**Prerequisites:** AUD 5400 with a minimum grade of D-

**AUD 6000 Electrophysiological Procedures Cr. 4**

Two distinct electrophysiological procedures, auditory evoked potentials and otoacoustic emissions, are presented. Both procedures consist of several sub-tests used to assess the auditory system from the middle ear to the cortex, in normal and disordered ears. Offered for graduate credit only. Offered Spring/Summer.

**Prerequisite:** AUD 5400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 6030 Instrumentation in Audiology Cr. 3**

Operation, hook-up, scientific notation, systems of measurement, calibration and repair of instruments and software used in clinical audiology. Offered for graduate credit only. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 6040 Auditory and Vestibular Pathologies Cr. 4**

Disorders of the auditory and vestibular systems. Etiology, pathological characteristics, medical and non-medical therapies.. Offered for graduate credit only. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 6310 Audiology Clinical Practicum Series Cr. 3**

Progression of knowledge and skill level, from introductory basic clinical skills through advanced clinical protocols for difficult to manage patients. Offered for graduate credit only. Offered Every Term.

**Prerequisite:** AUD 6410 with a minimum grade of C and AUD 6411 with a minimum grade of C and AUD 6412 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**Repeatable for 9 Credits**

**AUD 6400 Anatomy, Physiology, and Psychophysiology of Audition Cr. 4**

Structure and function of the human auditory system. Psychophysical theories of hearing. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Audiology or Speech-Language Pathology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy, Master of Arts or Master of Science degrees.

**AUD 6410 Basic Audiologic Evaluation Cr. 3**

Principles and application of pure-tone and speech audiometry, clinical masking, and impedance/immittance testing. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 6411 Audiology Clinical Laboratory I Cr. 2**

Development of basic competencies related to clinical procedures and methods for evaluation and treatment of clients; maintenance and use of technology in the university audiology clinic. Student will observe and begin to perform evaluations under faculty supervision. Offered for graduate credit only. Offered Fall.

**Prerequisite:** AUD 6410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$135

**AUD 6412 Audiology Clinical Laboratory II Cr. 2**

Continuation of basic competency development related to clinical procedures and methods for evaluation and treatment of clients, maintenance and use of technology in an audiology clinical practice. Students perform evaluations under faculty supervision. Offered for graduate credit only. Offered Winter.

**Prerequisite:** AUD 6040 with a minimum grade of C and AUD 6411 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$135

**AUD 6413 Audiology Clinical Laboratory III Cr. 2**

Continuation of competency development related to clinical procedures and methods for evaluation and treatment of clients, including advanced testing procedures. Course includes a rotating placement at a local health system. Offered for graduate credit only. Offered Spring/Summer.

**Prerequisites:** AUD 6411 with a minimum grade of B- and AUD 6412 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to students with a major in Audiology; enrollment limited to students in the Doctor of Audiology or Doctor of Audiology programs; enrollment is limited to Graduate level students.

**Fees:** \$135

**AUD 6430 Principles of Amplification I Cr. 3**

Electroacoustic and clinical aspects of acoustic amplifiers and developmental history of hearing aids. Offered for graduate credit only. Offered Winter.

**Prerequisite:** AUD 6410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 6530 Principles of Amplification II Cr. 3**

Fundamentals of digital technology, compression, channeling and programming, and applications to various hearing impairment parameters. Offered for graduate credit only. Offered Fall.

**Prerequisite:** AUD 6430 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 7300 Clinical Internship Cr. 3**

Supervised observation, training and practice in audiological procedures. Placements in local audiology settings as assigned by clinical rotation coordinator. Offered Every Term.

**Prerequisite:** AUD 5400 with a minimum grade of C and AUD 6410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**AUD 7320 Issues, Ethics and Scope of Practice in Audiology Cr. 2**

Code of Ethics and Scope of Practice as published by the professional organizations for audiology. Issues and case studies in ethical practice, malpractice, legal responsibilities, best practice, and counseling. Offered Spring/Summer.

**Prerequisite:** AUD 6000 with a minimum grade of C and AUD 6430 with a minimum grade of C and AUD 8430 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**AUD 7350 Contemporary Issues in Audiology Cr. 1-4**

Integrated seminar; topics announced in Schedule of Classes. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 16 Credits**

**AUD 7420 Hearing Loss Prevention Programs Cr. 3**

Assessment of damage risk criteria for noise-induced hearing loss. Implementation and management of hearing loss prevention programs in industry, schools, and community settings. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 7430 Pediatric Audiology Cr. 3**

Introduction to embryology, tests, test procedures, and counseling of parents with hearing-handicapped children. Offered Spring/Summer.

**Prerequisite:** AUD 6410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 7500 Aural Rehabilitation Cr. 3**

Treatment procedures, measurement and electrophysiological instrumentation, ethical dilemmas. Offered Spring/Summer.

**Prerequisite:** AUD 5420 with a minimum grade of C and AUD 6430 with a minimum grade of C and AUD 6530 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 7520 Counseling in Audiology Cr. 1**

Basic counseling principles and techniques applied to patients and their family members during evaluation and treatment of auditory and balance disorders. Offered Spring/Summer.

**Prerequisite:** AUD 6410 with a minimum grade of C and AUD 6411 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Communication Sci & Disorders.

**AUD 7540 Genetic Auditory Disorders Cr. 3**

Medical genetics and its application to hearing loss and craniofacial disorders; genetic etiology, diagnosis, therapeutic implications. Ethical, legal and social issues: cloning, gene therapy, and prevention. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Audiology, Communication Sci & Disorders, Comm Sci & Disorders Honors or Speech-Language Pathology; enrollment is limited to Graduate level students.

**AUD 7550 Intra-operative Neurophysiologic Monitoring Cr. 2**

Presentation of the techniques used to monitor neurological centers during head/neck surgery. Operating room observations required. Offered Spring/Summer.

**Prerequisite:** AUD 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Audiology, Communication Disorders&Sci or Commun Disorders&Sci Hon; enrollment is limited to Graduate level students.

**AUD 7630 Neuroscience of Communication Disorders Cr. 3**

Neuroscience, neurophysiology, neuropsychology, neuroimaging, normal aging processes and neurodevelopment in communication sciences and disorders. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** SLP 7630

**AUD 7990 Directed Study Cr. 1-3**

Literature review of an approved topic in audiology under supervision of the graduate faculty. Course may include an experimental investigation. Comprehensive written report is required. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**AUD 8300 Audiology Fellowship Cr. 8**

Advanced supervised clinical practice in an off-campus setting over the final three semesters of professional study. Offered Every Term.

**Prerequisite:** AUD 7300

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 24 Credits**

**AUD 8350 Research Seminar Cr. 3**

Topics announced in Schedule of Classes. Emphasis on clinical research methods. Offered Yearly.

**Prerequisite:** SLP 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 15 Credits**

**AUD 8430 Equilibrium/Vestibular System Evaluation Cr. 4**

Anatomy, physiology and functional assessment of the vestibular system including instrumentation, procedures, and interpretation of ENG, dynamic posturography, and rotational velocity testing recordings. Hands-on laboratory exercises included. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 8440 Medical Issues: Tinnitus, Central Auditory Processing and Auditory Neuropathy Cr. 3**

Role of the audiologist in the medical setting; advanced clinical skills and knowledge; health care issues and professional interaction in the medical setting. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**AUD 8450 Advanced Auditory/Vestibular Electrodiagnosis for Balance Assessment and Treatment Cr. 4**

Advanced evaluation of dizzy/balance patients; traditional test battery use with complex balance patients; recently developed electrophysiological techniques and computerized assessments; expansion of clinical and technical skills; walking and gait analysis. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.



**AUD 8460 Cochlear Implants and Other Auditory Prostheses Cr. 3**

New developments in assisted listening devices and cochlear implant protocols. Offered Winter.

**Prerequisite:** AUD 6530 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

## BA - Business Administration

**BA 1000 Student Success and Career Development for Business Students Cr. 1**

Designed to assist all incoming Mike Ilitch School of Business students in a successful transition to Wayne State University through interactive exercises and engaging assignments, student will develop the insights, skills and attitudes necessary for becoming a successful student. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the School of Business.

**BA 1040 Managing Diversity in the Workplace Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

This course prepares students to become effective coworkers and managers in today's diverse workplace. Traditional management theories are analyzed within a multicultural framework and students will be exposed to current diversity management practices in the field. Practical and experiential activities designed to help students understand the concepts are provided. Offered Yearly.

**BA 1100 Warrior Success Cr. 1**

**Satisfies General Education Requirement:** Wayne Experience

Designed to assist newly admitted students in becoming socialized and acclimated to Wayne State University. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Freshman.

**BA 1200 Personal Finance Planning Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
Introductory course designed to help students become financially literate and make proper financial decisions encountered in everyday life. Topics covered will include income, money management, spending and credit, as well as saving and investing. No credit after former FIN 3050. Offered Fall, Winter.

**BA 1500 Business Tools and Applications Cr. 3**

Integrated business computer concepts and business applications and tools to solve business problems. Offered Every Term.

**Corequisite:** BA 2300

**Restriction(s):** Enrollment limited to students in the School of Business.

**BA 2300 Quantitative Methods I: Probability and Statistical Inference Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
Measures of central tendency and dispersion. Introduction to probability; normal, binomial, uniform, and Poisson distributions. Statistical inference and sampling methods. Computer techniques. Offered Every Term.

**Corequisite:** BA 1500

**Restriction(s):** Enrollment limited to students in the School of Business.

**BA 3400 Quantitative Methods II: Statistical Methods Cr. 3**

Uses of statistical techniques in business. Topics include: sampling, hypothesis testing, confidence interval estimation, regression, analysis of variance and chi-square tests. Application to accounting, market research, finance, production and forecasting. Computer techniques. Offered Every Term.

**Prerequisites:** BA 2300 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**BA 5800 Business Virtual Global Internship Cr. 1-6**

The Internship allows students to apply the knowledge they have acquired through the virtual internship opportunity to gain practical experience in their professional areas of interest. Podium Education will be the main course used for this virtual global internship. This internship course also allows students to explore areas where they want to pursue a career. You will have the opportunity to reflect on your work experience with an intercultural lens, document your experience, and articulate the essential skills you develop from the virtual global internship course. Students earning a minimum B- grade will receive a badge for their LinkedIn site. Offered Every Term.

**BA 6000 Introduction to Accounting and Financial Reporting Cr. 3**

Introduction to accounting principles and the understanding and analysis of financial statements. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 6005 Basics of Financial Management Cr. 3**

Basic aspects of finance: time value of money, financial markets, risk and return, valuation and basic capital budgeting. Required of all graduate students; may be waived only through waiver exam. Offered for graduate credit only Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 6015 Marketing Foundations Cr. 2**

Fundamental principles that guide decision making in market-based management systems. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 6020 Contemporary Principles of Management Cr. 2**

Basic principles of organization theory and behavior in contemporary organizational settings. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 6030 Budgeting, Operations and Grants Cr. 2**

Introduction to accounting and financial reporting and understanding of budgeting, capital planning and grants management. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 7000 Managerial Accounting Cr. 3**

Fundamental principles; preparation and utilization of financial information for internal management purposes. No credit after ACC 6020. No credit for undergraduate accounting majors. Offered Every Term.

**Prerequisites:** BA 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.



**BA 7010 Global Operations and Supply Chain Management Cr. 3**

Effective management of supply chains is critical to overall firm performance. Supply chain management encompasses the management of financial, material, informational and human resource flow. Globalization has increased the strategic importance of effective supply chain management, making global supply chain and operations management decisions directly correlated to customer service and firm success. This course introduces students to the concepts and techniques of modern Global Supply Chain and Operations management. Students will gain fundamental knowledge of Supply Chain strategy formulation, Capacity Management, Business process mapping, Quality management, Theory of Constraints, Logistic Management, Location Analysis, Forecasting, Demand Planning and inventory management and Project Management. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 7020 Corporate Financial Management Cr. 3**

Development of tools to evaluate investment and financial decisions in modern global organizations. Offered Every Term.

**Prerequisites:** BA 6005 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 7030 Business Analytics Cr. 3**

This course provides students with the skills and perspective to apply analytics in a variety of business scenarios through the development of both applied and technical business analytics skills. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 7040 Managing Organizational Behavior Cr. 3**

Contemporary issues in managing and leading people and organizations. Topics include: creativity, culture change, leadership, teamwork, cross-cultural factors, performance management, and organizational change. No credit for undergraduate management majors. Offered Every Term.

**Prerequisites:** BA 6020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 7050 Marketing Strategy Cr. 3**

Application of theory, concepts, and models to contemporary marketing issues and problems. Developing and evaluating successful marketing strategies through analysis of customers, competitors, the organization, and the external environment. No credit for undergraduate marketing majors. Offered Every Term.

**Prerequisites:** BA 6015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 7060 Understanding Emerging Technologies Cr. 3**

Provides an understanding of how emerging business technologies alter business processes, affect operational efficiency, create competitive advantage, impact the organization's culture, and enhance customer relationships. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**Fees:** \$65

**BA 7070 Social Perspectives on the Business Enterprise Cr. 3**

Political, social, legal, ethical, regulatory, environmental, and global issues that interrelate with business decisions in the societal fabric. Offered Every Term.

**Prerequisites:** BA 6020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 7080 Strategic Management Cr. 3**

Application of theory and concepts regarding strategic formulation and implementation from the perspective of senior management, to integrate the functional areas and provide a unified direction for the firm when it is operating in complex local and/or global environments. Offered Every Term.

**Prerequisites:** BA 7000 with a minimum grade of C, BA 7020 with a minimum grade of C, BA 7040 with a minimum grade of C, BA 7050 with a minimum grade of C, and BA 7070 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 7500 Topics in Business Administration Cr. 3**

Selected topics in business administration. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 8050 Seminar in Marketing Theory Cr. 3**

Reading seminar; approaches to marketing and consumer behavior theory from historical and philosophy of science perspectives. Contributions from disciplines such as international business, economics, psychology, sociology, anthropology, operations research, and psychometrics. Publishable paper expected of students. Offered Every Other Year.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 8054 Seminar in Marketing Strategy Cr. 3**

Seminar focuses on strategic marketing issues, including marketing strategy theory; innovation theory; corporate, business, and marketing strategy; new product development strategy; industry structure, competition, and competitive advantage; market orientation; alliances and inter-organizational relationships; knowledge management and organizational learning; customer relationship management; and marketing organization. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BA 8058 Advanced Topics in Consumer Behavior Cr. 3**

Role of consumer in global economy; integrated marketing issues (IMC), movement toward relationship marketing (RM) across the value added chain to the development of consumer analysis. Conditions, issues, and practices; dimensions of strategic advertising. Offered Yearly.

**Prerequisites:** BA 8050 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 8120 Theory of Finance Cr. 3**

Modern corporate finance theory for finance doctoral students. Offered Yearly.

**Prerequisites:** FIN 7220 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**BA 8121 Seminar in Corporate Finance Cr. 3**

Theoretical and empirical studies in corporate finance for finance doctoral students. Offered Yearly.

**Prerequisites:** BA 8120 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 8122 Empirical Methods in Finance Cr. 3**

Fundamental asset pricing theories and empirical methods used in modern financial economics for finance doctoral students. Offered Yearly.

**Prerequisites:** BA 8120 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 8123 Seminar in Corporate Governance Cr. 3**

Theories and empirical studies in corporate finance for finance doctoral students. Offered Yearly.

**Prerequisites:** BA 8120 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**BA 8129 Development of an Effective Research Program in Finance Cr. 3**

The primary purpose of this doctoral research seminar is to facilitate the development of doctoral students' research ideas. One of these ideas should be developed into a full paper with the aim of submitting it to a peer-reviewed journal. Other aims of this seminar include: socializing students to the practices of the academy in the U.S., familiarizing students with major streams of research, preparing students for the dissertation process, and helping students to develop presentation skills. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BA 8220 Seminar in Organizational Behavior Cr. 3**

Areas such as motivation, reward systems, leadership, organizational culture and performance, job design, groups and teams, and decision making. Concepts, theories and fundamentals of organizational behavior (OB); areas of current research, application in global business environment. Offered Yearly.

**Prerequisites:** BA 7040 with a minimum grade of C or MGT 7640 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 8221 Seminar in Strategic Management Cr. 3**

Theories and concepts in the strategic management literature including contemporary concepts that apply to the international context. Offered Yearly.

**Prerequisites:** BA 8220 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 8420 Seminar in Organizational Theory Cr. 3**

Theories of organization for doctoral students. Offered Yearly.

**Prerequisites:** BA 8220 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 8777 Professional Development Seminar for Business Doctoral Students Cr. 1-3**

Exposure to professional development areas in preparation for productive academic careers; teaching, research writing, and academic culture. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**BA 8900 Development of Effective Research Programs in Business Cr. 3**

For doctoral students with a major cognate in finance, management, or marketing. Development, design and execution of effective research projects. Offered Yearly.

**Prerequisites:** BA 8058 with a minimum grade of C, BA 8122 with a minimum grade of C, and BA 8420 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 8995 Special Research Topics in Business Cr. 1-3**

Advanced research topics for business administration Ph.D. students. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**BA 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.  
**Repeatable for 12 Credits**

**BA 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Dissertation research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Doctoral Candidate; enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 9992 Dissertation II Cr. 7.5**

Dissertation research. Offered Every Term.

**Prerequisite:** BA 9991 with a minimum grade of S

**Restriction(s):** Enrollment limited to students with a class of Doctoral Candidate; enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 9993 Dissertation III Cr. 7.5**

Dissertation research. Offered Every Term.

**Prerequisite:** BA 9992 with a minimum grade of S

**Restriction(s):** Enrollment limited to students with a class of Doctoral Candidate; enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Dissertation research. Offered Every Term.

**Prerequisite:** BA 9993 with a minimum grade of S

**Restriction(s):** Enrollment limited to students with a class of Doctoral Candidate; enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.

**BA 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Prerequisite:** BA 9994 with a minimum grade of B

**Restriction(s):** Enrollment limited to students with a class of Doctoral Candidate; enrollment limited to students in the PhD in Business Administration program; enrollment is limited to Graduate level students.  
**Fees:** \$416.08

## BBE - Bilingual/Bicultural Education

**BBE 1005 Multicultural Education in Urban America Cr. 2**

Cultural, social, political and economic realities of our complex, pluralistic society in relation to our education system. Development of analytical and evaluative abilities of teachers to deal with racism, sexism, value clarification and the parity of power. Strategies for multicultural education. Offered Every Term.

**Equivalent:** TED 2210

**BBE 5000 Multicultural Education in Urban America Cr. 2**

Cultural, social, political and economic realities of our complex, pluralistic society in relation to our education system. Development of analytical and evaluative abilities of teachers to deal with racism, sexism, value clarification and the parity of power. Strategies for multicultural education. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BBE 5500 Introduction to Bilingual/Bicultural Education Cr. 3**

Survey of the history and legislative background of bilingual/bicultural education in the United States. Emphasis on the foundations, methods, concepts and theories of bilingual/bicultural education. Offered Intermittently.

**BBE 6560 Teaching Methods in Bilingual/Bicultural Education Cr. 3**

Utilization of traditional and innovative materials, techniques and methods in teaching elementary and secondary school subjects in a bilingual education program. Offered Intermittently.

**BBE 6590 Culture and Language in Bilingual/Bicultural Education Cr. 1-3**

Research and application of multicultural activities for designing processes to bring language and culture, and instruction in English, into the classroom. Offered Yearly.

**Repeatable for 3 Credits**

**BBE 6600 Internship in Bilingual/Bicultural Teaching Cr. 2-12**

Internship in a bilingual, multicultural setting; assessment of the cultural, educational, and linguistic needs of students of limited English-speaking ability. Offered Intermittently.

**Repeatable for 12 Credits**

**BBE 6850 Applied Linguistics: Issues in Bilingual Education Cr. 3**

Current major models of applied English linguistics, contrasting linguistics with special reference to the comparison of English and linguistic minority languages. Offered Yearly.

## BE - Basic Engineering

**BE 1001 Engineering Bridge Mentorship Program Participant I Cr. 1**

Required peer mentorship program for Engineering Bridge students. Offered Every Term.

**Corequisite:** BE 1060

**Restriction(s):** Enrollment is limited to students with a major in Engineering.

**BE 1002 Engineering Bridge Mentorship Program Participant II Cr. 0**

Required peer mentorship program for Engineering Bridge students. Offered Winter.

**Corequisite:** BE 1060

**BE 1050 Career Readiness for Engineering Students Cr. 1**

The design of the Career Readiness for Engineering Students series is set to help you identify and apply the steps necessary to reaching your goals related to your career and professional development. The materials & activities provided throughout the course will help you define your career goals, build your personal career materials, identify and apply the skills that are most sought after by employers to prepare you for success at your co-op and throughout your career. Offered Fall.

**BE 1060 Building a Foundation for College Success Cr. 1**

**Satisfies General Education Requirement:** Wayne Experience

This course is designed to expose students to the Wayne State University undergraduate experience. Students will gain an understanding of campus resources, institutional values, and the merits of a liberal arts education from an urban research one university. This course will aid in the development of critical and analytical thinking skills necessary for college success while determining one's academic and professional goals. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Freshman.

**Equivalent:** FPC 1020, RSE 1010

**BE 1101 Introduction to Officership Cr. 1**

Classroom introduction to leadership, and the experiential examination of leadership, followership, decision-making, and group accomplishment of tasks. Offered Every Other Year.

**BE 1102 Introduction to Leadership Cr. 1**

Continuation of B E 1101; focus on communications, leadership, and problem-solving. The light infantry platoon and the troop leading process. Offered Every Other Year.

**Prerequisite:** BE 1101 with a minimum grade of C-

**BE 1200 Basic Engineering I: Design in Engineering Cr. 3**

Core principles of engineering practice: design, teamwork, professional ethics. Offered Fall, Winter.

**Prerequisites:** MAT 1050 with a minimum grade of C (may be taken concurrently), MAT 1070 with a minimum grade of C (may be taken concurrently), MAT 1800 with a minimum grade of C (may be taken concurrently), MAT 2010 with a minimum grade of C- (may be taken concurrently), MAT 2020 with a minimum grade of C- (may be taken concurrently), or MAT 2030 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$50

**BE 1300 Basic Engineering II: Materials Science for Engineering****Applications Cr. 3**

Fundamentals of materials science; emphasis on how material properties and behavior affect engineering applications. Offered Every Term.

**Prerequisites:** (CHM 1125 with a minimum grade of C- or CHM 1100 with a minimum grade of C-), CHM 1130 with a minimum grade of C-, BE 1200 with a minimum grade of C- (may be taken concurrently), (PHY 2170 with a minimum grade of C- (may be taken concurrently) or PHY 2175 with a minimum grade of C- (may be taken concurrently)), and MAT 2020 with a minimum grade of C- (may be taken concurrently)

**Corequisite:** BE 1310

**BE 1310 Materials Science for Engineering: Laboratory Cr. 1**

Laboratory component of B E 1300. Offered Every Term.

**Corequisite:** BE 1300

**Fees:** \$35

**BE 1500 Introduction to Programming and Computation for Engineers Cr. 3**

Use of computational tools, such as Excel and MATLAB, to solve engineering problems. Topics include general engineering problem solving, algorithm development, programming, and computational analysis. Offered Fall, Winter.

**Prerequisites:** MAT 2010 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BE 1600 Introduction to Programming and Computation: Python Cr. 3**

An introduction to programming using Python for students with no programming experience. Basic control structures (sequence, selection, repetition) and all core data types using objects. Practice on core data structures (string, list, tuple, dictionary, and set). Design, implementation and testing of programs to solve problems with an emphasis on data manipulation using real world, practical examples. Offered Fall, Winter.

**BE 2100 Basic Engineering III: Probability and Statistics in Engineering Cr. 3**

An introduction to application of probability theory and statistical methods in engineering, including design and manufacturing. Offered Every Term.

**Prerequisites:** MAT 2020 with a minimum grade of C- (may be taken concurrently)

**BE 2201 Innovative Tactical Leadership Cr. 1**

Military organizational leadership with focus on leadership development and interpersonal group dynamics. Offered Every Other Year.

**Prerequisite:** BE 1102 with a minimum grade of C-

**BE 2202 Leadership in Changing Environments Cr. 2**

Challenges of leading in complex contemporary operational environments. Cross-cultural challenges of leadership applied to practical Army leadership tasks and situations. Offered Every Other Year.

**Prerequisite:** BE 1102 with a minimum grade of C-

**BE 2600 Global Tech Internship Cr. 3**

The Global Tech Experience is a virtual, equity-driven experiential learning program that enables undergraduate students from all backgrounds to build career-focused intercultural and technical skills. Offered Every Term.

**BE 3000 Engineering Bridge Mentorship Program Leader Cr. 0**

Documentation of mentor participation in Engineering Bridge Program. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**BE 3301 Leading Small Organizations I Cr. 2**

Leadership development and interpersonal and group dynamics. Methods of visualizing, planning and leading organizations to achieve set goals. Offered Every Other Year.

**BE 3302 Leading Small Organizations II Cr. 2**

Offered Every Other Year.

**Prerequisite:** BE 3301 with a minimum grade of C-

**BE 3500 Co-Op Record Cr. 0**

Engineering practice under supervision in cooperative education program. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**BE 3510 Internship Experience Cr. 1-3**

Engineering practice under supervision in cooperative/internship education program. Written report required. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Repeatable for 6 Credits**

**BE 3900 National Design Competition Participant Cr. 0**

For engineering undergraduates who are active team members in national engineering design competition projects. Satisfactory completion of this course will document active participation throughout the semester. Offered Every Term.

**BE 4401 Leadership and Management Cr. 3**

Multiple styles and theories of leadership; ethical decision making, especially as relating to changing organizational and individual behavior; accomplishing goals in resource-constrained environments. Offered Every Other Year.

**Prerequisite:** BE 3302 with a minimum grade of D-

**BE 4402 Military Professionalism and Professional Ethics Cr. 3**

Evaluation and assessment of needs of subordinate units and individuals; near-term and short-term plans to address these needs. Analysis of a historical battle as well as analysis of moral and leadership dilemmas in history. Offered Every Other Year.

**Prerequisite:** BE 4401 with a minimum grade of C-

**BE 5900 National Design Competition Projects Cr. 1-4**

Primarily for engineering undergraduates who are dedicating a substantial amount of effort towards college-sponsored national design competition projects. Offered Every Term.

**Repeatable for 99 Credits**

**BE 5995 Special Topics in Engineering Cr. 4**

Special topics not covered in other courses; topics announced in Schedule of Classes. Offered Every Term.

**Repeatable for 99 Credits**

**BE 5998 Engineering Honors Thesis Cr. 1-4**

Completion of required Honors Thesis. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**Repeatable for 4 Credits**

## BIO - Biological Sciences

**BIO 1011 The Basics of Climate Change Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry  
Global climate change is the defining issue of our time because it impacts every aspect of life, from the economy, to agriculture, health, and ecology, in every nation on Earth. The complexity and multidisciplinary nature of climate change, not to mention the preconceptions held by individuals, results in most people having only a limited understanding of the evidence for, predicted effects, and potential solutions to this issue. This course will present students with the scientific background necessary to evaluate the evidence for the theory of anthropogenic climate change and the global effects of climate change. Using the scientific method as a basis, we will explore the multi-disciplinary evidence behind climate change and its global and cross-cultural effects and discuss potential solutions based in adaptation and mitigation. Offered Yearly.

**BIO 1030 Biology Today Cr. 3**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry  
Challenges to modern society from population growth, new diseases, environmental degradation, urban pollution; medical advances and ethical dilemmas in decoding human genome; impact of biological findings on political and personal decisions; issues considered in context of principles and strategies of modern biological research. Not for biology major credit. Offered Fall, Winter.

**BIO 1040 Exploring Life Cr. 1**

Students will explore key elements of the scientific process, including hypothesis testing, scientific rigor, statistical significance, and peer review. Students will be introduced to fundamental properties and explore basic attributes of various biological systems at a variety of scales. Students will connect knowledge to current societal issues and practice scientific evaluation of arguments and information sources. This course is geared towards students who are not majoring in Biology. This course may not be taken for credit after BIO 1500 or BIO 1510, or any BIO class at the 2000-level or above. Offered Fall, Winter.

**Prerequisites:** BIO 1030 with a minimum grade of C- (may be taken concurrently) or BIO 1050 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$25

**BIO 1050 An Introduction to Life Cr. 3**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry  
A factual and conceptual treatment of modern biology at the cell, organismal, and population levels of organization. No credit after BIO 1500 or BIO 1510. Offered Every Term.



**BIO 1500 Basic Life Diversity Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry  
This course provides an overview of the diversity of life on Earth and the processes that impact it. The primary objective of BIO 1500 is to expose students to the great variety of plants, fungi, protists, and animals, examining their structure, function, growth, ecology, evolution, and distribution. BIO 1500 and BIO 1501 must be elected as corequisites when taken for the first time. No credit after former BIO 1520. Offered Every Term.

**Prerequisites:** BIO 1050 with a minimum grade of C-, BIO Permit to Reg ACT/SAT with a test score minimum of 2, BIO Permit to Reg-(L1-L2) BPE with a test score minimum of 2, or BIO 1510 with a minimum grade of C-  
**Corequisite:** BIO 1501

**BIO 1501 Basic Life Diversity Laboratory Cr. 1**

Students will explore the branches of life and scientific classification. This course will cover physiological systems, Mendelian genetics and ecological relationships. Students will be introduced to fundamental scientific skills including critical reading and scientific writing, microscopy and use of basic laboratory equipment. BIO 1500 and BIO 1501 must be elected as corequisites when taken for the first time. Offered Every Term.

**Corequisite:** BIO 1500

**Fees:** \$25

**BIO 1510 Basic Life Mechanisms Cr. 3**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry

This course provides an understanding of the structure, metabolism and reproduction of living things from the perspective of the cell. The course will focus on the role of biochemical and subcellular components including proteins, nucleic acids, and organelles in the nutrition, inheritance and development of plants and animals. The course will also relate these concepts to topical issues such as nutrition, human genetics, and recombinant DNA technology. BIO 1510 and BIO 1511 must be elected as corequisites when taken for the first time. Offered Every Term.

**Prerequisites:** BIO 1050 with a minimum grade of C-, BIO Permit to Reg ACT/SAT with a test score minimum of 2, BIO Permit to Reg-(L1-L2) BPE with a test score minimum of 2, or BIO 1500 with a minimum grade of C-  
**Corequisite:** BIO 1511

**BIO 1511 Basic Life Mechanisms Laboratory Cr. 1**

Students will explore the molecules and biochemical reactions that are vital to life. This course will cover classes of biomolecules, enzymes and life processes including cellular respiration and photosynthesis. Students will be introduced to fundamental scientific skills including critical reading and scientific writing, microscopy and use of basic laboratory equipment. BIO 1510 and BIO 1511 must be elected as corequisites when taken for the first time. Offered Every Term.

**Corequisite:** BIO 1510

**Fees:** \$30

**BIO 2270 Principles of Microbiology Cr. 3**

Students will be instructed in the basic principles of microbial structure and function, microbial growth and control, microbial mechanism of pathogenesis, human immune responses, and disease control. Offered Winter, Spring/Summer.

**Prerequisites:** BIO 1510 with a minimum grade of C- and BIO 1511 with a minimum grade of C-

**Corequisite:** BIO 2271

**BIO 2271 Principles of Microbiology Lab Cr. 2**

Students will gain insight into the nature of scientific inquiry, the process by which knowledge is accumulated and accepted as illustrated, and the strengths and limitations of the scientific process and its progressive, self-correcting qualities. Observational and experimental skills will be imparted to students, using both traditional and discovery-based learning. The students will experience the scientific method first hand in performing experiments that reflect the current state of the art and demonstrate the principles underlying major concepts of modern microbiology. Students will also learn to properly record their data in a laboratory notebook. Offered Winter, Spring/Summer.

**Prerequisites:** BIO 1510 with a minimum grade of C- and BIO 1511 with a minimum grade of C-

**Corequisite:** BIO 2270

**Fees:** \$90

**BIO 2550 Fundamentals of Cell Biology for Neuroscience Cr. 4**

This course is designed for undergraduate students majoring in Neuroscience. It introduces the student to the structure and function of the cell, which is the fundamental unit of life, and underlies the functionality of neurons and glia, the cells that make up the brain. Offered Every Term.

**Prerequisites:** BIO 1510 with a minimum grade of C-

**BIO 2600 Introduction to Cell Biology Cr. 4**

This course builds on the students' earlier introduction to the basic mechanisms of life and focuses the students on the structure and function of the cell, which is the fundamental unit of all life. It is designed for undergraduates who major in the Biological Sciences or other science majors, including science education, pre-allied health, and engineering. It is also intended for all students who seek an introductory knowledge of cell biology. Offered Every Term.

**Prerequisites:** BIO 1500 with a minimum grade of C- and BIO 1510 with a minimum grade of C-

**BIO 2700 Evolution: Basic Concepts and Applications Cr. 3**

Evolution, i.e. "descent with modification," is key to understanding life at the genetic, genomic, and organismal level. Many of the concepts and tools developed by evolutionary biologists have become mainstream concepts and tools in a large number of science areas. This course introduces these basic concepts and tools, and how they relate to key processes that shaped the diversity of organismal life. Course cannot be taken for credit after successful completion of BIO 4200 with a C- or better. Offered Every Term.

**Prerequisites:** BIO 1500 with a minimum grade of C-

**BIO 2870 Anatomy and Physiology Cr. 5**

Detailed study of structure and function of the major systems of the body: skeletal, nervous, muscular, endocrine, circulatory, respiratory, digestive, excretory, and reproductive. No major credit for Biological Sciences majors. Offered Every Term.

**Prerequisites:** BIO 1510 with a minimum grade of C- and BIO 1511 with a minimum grade of C-

**Fees:** \$30

**BIO 3070 Genetics Cr. 5**

Transmission, nature and action of genetic material in organisms. Laboratory experiments to demonstrate principles of genetics. Offered for five credits to Honors students only; includes lab experience. Offered Every Term.

**Prerequisites:** (BIO 2550 with a minimum grade of C- or BIO 2600 with a minimum grade of C-) and BIO 1511 with a minimum grade of C-

**Fees:** \$45



**BIO 3100 Cellular Biochemistry Cr. 3**

Biosynthesis and metabolism of proteins, carbohydrates, lipids, steroids, amino acids and nucleic acids. The basic principles of enzyme kinetics in living systems. Offered Every Term.

**Prerequisites:** (BIO 2550 with a minimum grade of C- or BIO 2600 with a minimum grade of C-) and CHM 1240 with a minimum grade of D-

**BIO 3110 Biomolecules to Cell Biology: Mastering Concepts Through Teaching Cr. 2**

Provide Honors students with a service learning opportunity (peer mentor/assistant in BIO 1510) that will enhance their knowledge of biology while engaging them with experiences in teaching and interacting with students. Offered Fall, Winter.

**Prerequisites:** BIO 1510 with a minimum grade of B and BIO 2600 with a minimum grade of B

**Corequisite:** HON 3000

**Repeatable for 4 Credits**

**BIO 3200 Human Physiology Cr. 3**

Basic principles of human physiology, including major systems from a cellular, molecular, and integrative approach. Offered Every Term.

**Prerequisites:** BIO 2550 with a minimum grade of C-, BIO 2600 with a minimum grade of C-, or BIO 2870 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 3250 Molecular Mechanisms of Microbiology Cr. 3**

Introduce students to fundamental mechanisms and the broad spectrum of modern microbiology. An evolutionary approach is used, emphasizing the interrelationships of structure and function on a scale ranging from molecular systems to ecosystems. The course addresses the anatomy, physiology, genetics, and behavior of microorganisms, and interactions of microbes with humans, plants and the environment. The influence of microbes on society will be emphasized by introducing microbial application in commercial products and microbial diseases in their co-evolution with host responses. Offered Fall.

**Prerequisites:** (1 of (BIO 2550 with a minimum grade of C- or BIO 2600 with a minimum grade of C-) or (BIO 1510 with a minimum grade of C- and CHM 1240 with a minimum grade of C-))

**Corequisite:** BIO 3251

**BIO 3251 Molecular Mechanisms of Microbiology Lab Cr. 2**

From the laboratory course, students will gain insight into the nature of scientific inquiry, the process by which knowledge is accumulated and accepted as illustrated, and the strengths and limitations of the scientific process and its progressive, self-correcting qualities. Observational and experimental skills will be imparted to students, using both traditional and discovery-based learning. The students will experience the scientific method first hand in performing experiments that reflect the current state of the art and demonstrate the principles underlying major concepts of modern microbiology. Students will also learn to properly record their data in a laboratory notebook. Offered Fall.

**Prerequisites:** BIO 3250 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$100

**BIO 3270 Introductory Immunology Cr. 3**

This course will provide a comprehensive overview of key concepts of innate and adaptive immunity in mammalian organisms, build student appreciation of the elegance and complexity in immune responses against infectious agents, and introduce their implications in autoimmune diseases, organ transplantation and the emerging cancer immunotherapy. Offered Intermittently.

**Prerequisites:** BIO 2600 with a minimum grade of C- or BIO 2550 with a minimum grade of C-

**BIO 3500 Ecology and the Environment Cr. 3**

Introduction to key ecological concepts illustrated with contemporary environmental issues; basic population, community, ecosystem, landscape, and global ecology. Offered Fall.

**Prerequisites:** BIO 1500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** ESG 3500

**BIO 3800 Botany Cr. 3**

Introduction to plant morphology, systematics, development, and physiology. Lectures and hands-on laboratory, readings and discussions. Offered Every Other Year.

**Prerequisites:** BIO 3070 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$40

**BIO 3990 Directed Study Cr. 1-4**

Primarily for biology majors who wish to continue in a field beyond that covered in regular courses; to be taken under direction of Biological Sciences faculty. Offered Every Term.

**Repeatable for 8 Credits**

**BIO 4050 Science Advocacy and Public Engagement Cr. 2**

This course will provide students with the opportunity to understand diverse types of science media as well as best practices and strategies for interacting with different kinds of audiences. Offered Fall.

**Prerequisites:** BIO 2550 with a minimum grade of C-, BIO 2600 with a minimum grade of C-, or COM 3150 with a minimum grade of C-

**Equivalent:** NEU 4050

**BIO 4110 Biomedical Technology and Molecular Biology Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency General principles of molecular biology of prokaryotes and eukaryotes.

Includes structures of DNA, RNA, and protein, DNA replication and repair, transcription and translation, gene regulation and gene expression.

Emphasis on applications in medical biology and biotechnology. Fulfills General Education Writing Intensive Course in the Major requirement; each student writes reports and one long research paper on topic approved by instructor, in addition to other course writing requirements. Offered Fall.

**Prerequisites:** BIO 3070 with a minimum grade of C- and BIO 3100 with a minimum grade of C-

**BIO 4120 Comparative Physiology Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency Physiological processes at the molecular, cellular, and organismal levels.

Comparison of major physiological systems across groups of organisms. Lab consists of physiology exercises and lab reports that allow students to explore major conceptual themes in physiology. Fulfills General Education Writing Intensive Course in the Major requirement; each student writes reports, and one long research paper on topic approved by instructor, in addition to other course writing requirements. Offered Every Term.

**Prerequisites:** BIO 1500 with a minimum grade of C-, BIO 3070 with a minimum grade of C-, and BIO 3200 with a minimum grade of C-

**Fees:** \$30

**BIO 4130 General Ecology Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency Principles of population, community, ecosystem, and landscape

ecology. Fulfills General Education Writing Intensive Course in the Major requirement; each student writes reports and one long research paper on topic approved by instructor, in addition to other course writing requirements. Offered Winter.

**Prerequisites:** BIO 3070 with a minimum grade of C- and BIO 3500 with a minimum grade of C-

**Fees:** \$20

**BIO 4140 Hormones and Behavior Cr. 3**

Examines the relationship between hormones and behavior, taking a biological approach to behavioral questions that have long been of interest to Psychologists, Biologists and Neuroscientists. Explores the research area of Behavioral Endocrinology, a field that seeks biologically (in particular hormone)-based explanations of behavior. Offered Winter.

**Prerequisites:** PSY 1010 with a minimum grade of C and (PSY 3120 with a minimum grade of C or PSY 3330 with a minimum grade of C)

**Equivalent:** PSY 4140

**BIO 4200 Evolution Cr. 3**

Evidence for mechanisms of evolution at the molecular, organismal and population level. Offered Every Term.

**Prerequisites:** BIO 3070 with a minimum grade of C- and (BIO 3100 with a minimum grade of C-, BIO 3200 with a minimum grade of C-, or BIO 3500 with a minimum grade of C-)

**BIO 4220 Biological Dimensions of Evolutionary Psychology Cr. 3**

This course introduces the genetic and comparative tools used in evolutionary psychology and the major insights that have accumulated through these approaches. In the process, the course also discusses how these outcomes impact a wide range of research areas including philosophy, social sciences, political sciences, and economics. Offered Fall.

**Prerequisite:** BIO 1510 with a minimum grade of C- and (BIO 1500 with a minimum grade of C- or BIO 2700 with a minimum grade of C- or PSY 1010 with a minimum grade of C- or PSY 1020 with a minimum grade of C-)

**BIO 4340 Regenerative Biology and Medicine Cr. 4**

Introduces students specializing in biomedical engineering and premedical students to the conceptual and methodological principles of modern regenerative biology and medicine. Includes a review of research methods and achievements in this field and the translational applications of regenerative biology to tissue engineering and the development of regenerative therapies. Offered Winter, Spring/Summer.

**Prerequisite:** BIO 2600 with a minimum grade of C-

**BIO 4350 Laboratory Research Experience in Molecular Bacterial Genetics Cr. 3**

Discovery-based laboratory research experience centered on identification of genes controlling bacterial behavior. Students will identify genes that control the developmental life cycle of a soil bacterium, design experiments to characterize any genes identified, and characterize their role in regulating bacterial behavior. Students will employ a series of common bacteriology and molecular biology techniques including bacterial transformation, phenotypic assays, PCR amplification, cloning, plasmid isolation, immunoblot, and web-based bioinformatic analyses. Offered Intermittently.

**Prerequisite:** BIO 2200 with a minimum grade of C- and BIO 3070 with a minimum grade of C-

**Fees:** \$60

**BIO 4370 Microbial Communities Cr. 3**

An introduction to the concept of microbial communities and their roles in health and the environment. The study of biofilms in disease, microbial communities in the environment, and human/animal microbiota will be covered. Offered Every Other Year.

**Prerequisite:** (BIO 2200 with a minimum grade of C- or BIO 3250 with a minimum grade of C-) and BIO 3070 with a minimum grade of C-

**BIO 4420 Biogeography Cr. 3**

An examination of current and past spatial distributions of biological diversity with an emphasis on the ecological, evolutionary, geological, and climatological processes underlying biogeographic variation. Offered Every Other Year.

**Prerequisites:** BIO 3500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 4630 Histology Cr. 4**

Characteristics and identification of normal mammalian tissues. Micro-anatomy of the mammal. Functional interpretation of microstructure and fine structure. Offered Winter, Spring/Summer.

**Prerequisites:** BIO 2600 with a minimum grade of C- or BIO 2870 with a minimum grade of C-

**Fees:** \$20

**BIO 4690 Molecular and Cellular Neurobiology Cr. 3**

Focuses on the molecular and cellular aspects of neuronal function, from cellular signaling to sensory and motor function as well as behavior, learning and memory. Also covers the biological aspects of neuronal function, from molecules to cells to systems. Offered Fall.

**Prerequisite:** BIO 3200 with a minimum grade of C-

**BIO 4795 Special Topics in Behavioral and Cognitive Neuroscience Cr. 3**

This is an undergraduate course that is designed to be a participatory exploration with a faculty expert on an advanced, emergent, and/or stimulating topic within Neuroscience. This course will provide students with a detailed understanding of contemporary research topics in the broad interdisciplinary field of Behavioral and Cognitive Neuroscience, encompassing behavioral, clinical, cognitive, developmental, and systems neuroscience. Offered Intermittently.

**Prerequisites:** BIO 2600 with a minimum grade of C- and (PSY 1010 with a minimum grade of C- and PSY 1020 with a minimum grade of C-)

**Repeatable for 6 Credits**

**BIO 4895 Special Topics in Cellular and Molecular Neuroscience Cr. 3**

This is an undergraduate course that is designed to be a participatory exploration with a faculty expert on an advanced, emergent, and/or stimulating topic within Neuroscience. This course will provide students with a detailed understanding of contemporary research topics in the broad interdisciplinary field of Cellular and Molecular Neuroscience. Offered Intermittently.

**Prerequisites:** BIO 3200 with a minimum grade of C-

**Repeatable for 6 Credits**

**BIO 4990 Introduction to Research Practice Cr. 1**

Introduces laboratory safety, research practice and scientific integrity for undergraduate students engaged in independent research. It is a co-requisite for students enrolling in BIO 4991-4994 for the first time. Students must complete online CITI training modules in basic laboratory safety before the conclusion of first two weeks of class. Offered Every Term.

**Prerequisites:** BIO 4991-4994 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment is limited to students in the Department of Biological Sciences.

**BIO 4991 Undergraduate Research in Biological Sciences Cr. 1**

Original research performed under the guidance of a faculty member. Registration is by permission only. Offered Every Term.

**Prerequisites:** BIO 4990 (may be taken concurrently)

**Repeatable for 5 Credits**

**BIO 4992 Undergraduate Research in Biological Sciences Cr. 2**

Original research performed under the guidance of a faculty member. Registration is by permission only. Offered Every Term.

**Prerequisites:** BIO 4990 (may be taken concurrently)

**Repeatable for 6 Credits**

**BIO 4993 Undergraduate Research in Biological Sciences Cr. 3**

Original research performed under the guidance of a faculty member. Registration is by permission only. Offered Every Term.

**Prerequisites:** BIO 4990 (may be taken concurrently)

**Repeatable for 6 Credits**

**BIO 4994 Undergraduate Research in Biological Sciences Cr. 4**

Original research performed under the guidance of a faculty member. Registration is by permission only. Offered Every Term.

**Prerequisites:** BIO 4990 (may be taken concurrently)

**Repeatable for 8 Credits**

**BIO 5020 Comprehensive Virology Cr. 3**

Course provides students with a comprehensive knowledge of molecular virology, from viral classification, viral structures and life cycles, to host response and global health. Offered for undergraduate credit only. Offered Fall.

**Prerequisites:** BIO 2270 with a minimum grade of C-, BIO 3250 with a minimum grade of C-, or BIO 3270 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 5040 Biometry Cr. 4**

Quantitative methods in biology. Statistical approach to data analysis and the design of experiments. Laboratory section permits actual analysis of selected statistical problems. Offered Intermittently.

**Prerequisites:** BIO 2600 with a minimum grade of C- and (STA 1020 with a minimum grade of C-, STA 2210 with a minimum grade of C-, or MAT 2020 with a minimum grade of C-)

**Fees:** \$15

**BIO 5060 Special Topics Cr. 1-6**

Formalized treatment of the current state of knowledge in a significant area of biology. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** BIO 2600 with a minimum grade of C-

**Repeatable for 6 Credits**

**BIO 5080 Cellular Basis of Animal Behavior Cr. 3**

Relationship between behavior and neuroscience using a variety of animal models, each examined from the level of natural behavior progressively to the cellular level. Topics include: sensory systems, motor behavior, and learning. Offered Winter.

**Prerequisites:** BIO 2600 with a minimum grade of C-

**Equivalent:** PSY 5080

**BIO 5100 Aquatic Ecology Cr. 4**

Physical, chemical and biological processes occurring in lakes, streams and wetlands. Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisites:** BIO 1500 with a minimum grade of C- and BIO 3500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$67

**BIO 5150 Genomics Cr. 3**

Introduction to the theory and practice of genomics. Topics include sequencing and mapping, overview of genomes, comparative genomics, transcriptomes, population genetics and genomics, basic bioinformatics and statistics, population-level variation (SNPs, MNPs, indels), ethics, evolutionary genomics, and functional genomics. Offered for undergraduate credit only. Offered Fall.

**Prerequisites:** BIO 3070 with a minimum grade of C- and BIO 3100 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 5180 Field Investigations in Biological Sciences Cr. 12**

Field studies of one to fifteen weeks, emphasizing biological principles and techniques demonstrated in the field. Offered Intermittently.

**Prerequisites:** (BIO 2200 with a minimum grade of C- or BIO 2600 with a minimum grade of C-), BIO 1500 with a minimum grade of C-, and BIO 1510 with a minimum grade of C-

**Fees:** \$125

**Repeatable for 20 Credits**

**BIO 5240 Molecular Systems Biology Cr. 3**

Introduces the basic design principles of biological circuits and networks and their functional designs at the molecular, pathway, whole cell, and population levels. Students will perform a comprehensive group project to build a computational model of a simple biological network. Offered Every Other Year.

**Prerequisites:** BIO 3070 and PHY 2140

**BIO 5260 Evolution of Pathogen Genomes of Modern Disease Cr. 3**

Understanding the evolutionary processes that shape pathogen genomes is critical to our understanding of infectious disease biology. This course will introduce fundamental concepts in genome evolution, and use common pathogens as examples to discuss the uniqueness of different evolutionary processes and genomic changes in each pathogen, with special emphasis on microbes. Much of the answers lie in the genomes of these pathogens and how their genomes change over time. Offered Intermittently.

**Prerequisites:** BIO 2700 with a minimum grade of C- or BIO 4200 with a minimum grade of C-

**BIO 5280 Bioinformatics Cr. 3**

Basic Linux commands and PERL programming skills, sequence comparison, phylogenetic analysis, gene/genome patterns. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** BIO 3070 with a minimum grade of C- and BIO 3100 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 5290 Evolutionary Medicine Cr. 3**

Examines the recent trend in applying fundamental evolutionary concepts to medical field and how this trend can lead to better treatment and therapy development. Students will explore a range of topics, from what is a disease to body defenses and reproductive medicine, by reading and discussing assigned material from their textbooks and selected research articles. Offered Winter.

**Prerequisite:** BIO 3070 with a minimum grade of C-

**BIO 5310 Infections and Innate Immunity Cr. 3**

There is a constant arms race between pathogens and their hosts. Tipping the balance decides outcomes and severity of infections. The hosts equip multiple lines of defense against the invading pathogens, meanwhile, the pathogens use a wide variety of arsenals to counteract host defense. This course is designed to introduce infection strategies used by pathogens and anti-microbial responses in the host cells at cellular and molecular levels. The course covers the interactions between hosts and microbes, including small molecules, post-translational modifications, protein interactions, signaling transduction and molecular machineries. Understanding these mechanisms during host-microbe interactions will provide important foundation for developing potential therapeutics. Offered Fall.

**Prerequisite:** BIO 2200 with a minimum grade of C- or BIO 2270 with a minimum grade of C- or BIO 3250 with a minimum grade of C- or BIO 2600 with a minimum grade of C- or BIO 2550 with a minimum grade of C-

**BIO 5330 Principles and Applications of Biotechnology I Cr. 3**

Review of origins of molecular biotechnology and its characteristic technologies; survey of applications of biotechnology to problems in industries. Offered Fall.

**Prerequisites:** BIO 2200 with a minimum grade of C-, BIO 3070 with a minimum grade of C-, and BIO 3100 with a minimum grade of C-

**BIO 5350 Microbial Biofilms Cr. 3**

The objective of the course is understand the features, and molecular mechanisms used by bacteria to build or disperse microbial biofilms. Students will learn the techniques and tools used to research microbial biofilms. Offered Intermittently.

**Prerequisites:** BIO 3250 with a minimum grade of C-

**BIO 5440 Terrestrial Ecology Cr. 4**

Ecology of forests and grasslands. Field study and interpretation of ecological processes. Importance of species-site relationships and disturbance history. Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisites:** BIO 1500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$110

**BIO 5490 Population and Community Ecology Cr. 3**

Population dynamics of animals and plants. Life history theory. Species interactions. Structure and dynamics of communities. Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisites:** BIO 3500 with a minimum grade of C- and (STA 1020 with a minimum grade of C-, MAT 2020 with a minimum grade of C-, or STA 2210 with a minimum grade of C-)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 5540 Landscape Ecology Cr. 3**

Concepts, methods, and applications of landscape ecology; causes and implications of ecological patterns and heterogeneity on landscapes; interrelationships of patterns and ecological processes. Offered Every Other Year.

**Prerequisites:** BIO 1500 with a minimum grade of C- and BIO 3500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 5610 Developmental Biology Lab Cr. 1**

Slides, models, and 4-D computer programs used to enable the student to know and recognize the cascade of structural changes that take place during the embryological developmental pathways. Offered Winter.

**Prerequisites:** BIO 5620 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$55

**BIO 5620 Developmental Biology Cr. 3**

An analytical and comparative study of genetic and cellular mechanisms and their interaction with environmental factors to effect the developmental mechanisms which produce the adult organism. Origin and unfolding of structural patterns characteristic of different species; their evolutionary origins. Offered Winter.

**Prerequisites:** BIO 3070 with a minimum grade of C-

**BIO 5640 Cancer Biology Cr. 3**

Introduction to integrated analysis of cancer and cell biology, pathology, etiology and therapy. Offered Intermittently.

**Prerequisites:** BIO 2600 with a minimum grade of C-, BIO 3070 with a minimum grade of C-, and BIO 3100 with a minimum grade of C-

**BIO 5660 Neural Signaling in Health and Disease Cr. 3**

Addresses major principles of how various brain systems regulate physiological processes of the body function, both individually and as an integrated unit. Includes principles of physiological communication as it relates to homeostasis, metabolism, and both neural and endocrine communication; emphasis is given not only to major principles but also to how these principles were developed. Topics include (but are not limited to) dysfunction and disorders of the central nervous system (CNS) in the context of signaling pathways and hormonal systems, neurodegeneration, interaction between neurons and glia cells and neuroinflammation. Offered Fall.

**Prerequisite:** BIO 3200 with a minimum grade of C-

**BIO 5680 Basic Endocrinology Cr. 3**

Basic description of the human endocrine system, the endocrine control of several physiologic processes (growth, development, metabolism and reproduction), and a description of common endocrine disorders. Offered Fall.

**Prerequisites:** BIO 3200 with a minimum grade of C- or BIO 4120 with a minimum grade of C-

**Equivalent:** PSL 5680

**BIO 5740 General Entomology Cr. 4**

This course will focus on introducing students to the taxonomy (identification), natural history, ecology, and evolutionary biology of the Class Insecta and related taxa. Through in-class lectures and inside and outside the classroom lab-based activities, students will have the opportunity to apply the process of science to tap into the interdisciplinary nature of entomology. More specifically, after successfully completing this course, you should be able to sight-identify the major insect orders and species that exist in urban and suburban Detroit, and have a thorough understanding of the biology and evolution of insects, their diversity, their role in natural ecosystems, the basics of their physiology, development, and behavior, and the many important ways they affect human life. Offered Intermittently.

**Prerequisite:** BIO 2700 with a minimum grade of C-

**Fees:** \$60

**BIO 5750 Biology of Longevity and Aging Cr. 3**

Longevity, aging and senescence viewed as fundamental biological processes common to most organisms. Data-based discussion of investigative methods and accepted facts regarding the mechanisms underlying longevity and aging, coupled with critical discussion of behavioral and biological interventions known to retard or reverse the aging processes. Systems biology overview of the process, including societal parameters necessary to the maintenance of longevity. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** BIO 3070 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 5890 Neuroplasticity Cr. 3**

Neuroplasticity is the study of the ways the brain changes in response to genetic controls, and to the internal and external environments. Neuroplasticity includes neural development (neurogenesis and migration, neural differentiation, axon pathway formation, and synapse formation and maturation), mechanisms of learning and memory, homeostasis of excitability, aging, diseases, and responses to injury. To explore these topics, students will read and discuss readings from their textbook and seminal research articles from a variety of animal models, and run simulations. Offered Winter.

**Prerequisites:** BIO 3200 with a minimum grade of C-

**BIO 5996 Senior Research Cr. 1-2**

Original research. To be taken under direction of Biological Sciences faculty. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to Undergraduate level students.

**Repeatable for 3 Credits**

**BIO 6000 Molecular Cell Biology I Cr. 3**

Analysis of cell structure at the molecular and cellular levels and the physiological consequences of these structures: isolation, physico-chemical properties, and biological attributes of cells, organelles, and biopolymers including nucleic acids, proteins, and lipids. Offered Fall.

**Prerequisites:** BIO 2600 with a minimum grade of C (may be taken concurrently) and BIO 3100 with a minimum grade of C (may be taken concurrently)



**BIO 6010 Molecular Cell Biology II Cr. 4**

Analysis of cell regulation at the molecular level. Cell development and differentiation. Genetic mechanisms including: DNA synthesis and repair, mechanism of gene expression and control. Offered Winter.

**Prerequisite:** BIO 6000 with a minimum grade of C-

**BIO 6020 Methods of Analyses Cr. 4**

Design and execution of experiments in molecular biology. Topics include: laboratory safety, scientific documentation, database searching, development of experimental protocols, error analysis, solutions and buffers, electrophoretic separation of proteins and nucleic acids, basic immunohistochemistry, bioimaging, and scientific ethics. Offered Fall.

**Prerequisites:** BIO 4110 with a minimum grade of C- (may be taken concurrently) (must be taken at WSU) or BIO 5330 with a minimum grade of C- (may be taken concurrently) (must be taken at WSU)

**Fees:** \$50

**BIO 6055 Biology of the Eye Cr. 3**

Introduction to biology of eye structure/function, and to causes and clinical treatments of eye-related disorders and diseases. Offered for undergraduate credit only. Offered Fall.

**Prerequisite:** BIO 2600 with a minimum grade of C- and BIO 3100 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**Equivalent:** ANA 6050, PYC 6050

**BIO 6090 Population Genetics Cr. 3**

Theoretical bases for microevolutionary change in natural populations of organisms; basic to study of evolutionary genetics and evolutionary ecology. Offered Intermittently.

**Prerequisite:** BIO 3070 with a minimum grade of C-

**BIO 6120 Molecular Biology Laboratory I Cr. 3**

Laboratory exercises illustrate methods and concepts of molecular biology and recombinant DNA analysis. Offered Winter.

**Fees:** \$30

**BIO 6160 Proteins and Proteomics Cr. 3**

Structure and dynamics of proteins at the molecular level. Strategies used to biochemically purify, analyze, and characterize proteins. Offered Winter.

**Prerequisite:** BIO 3100 with a minimum grade of C- or CHM 5600 with a minimum grade of C- or CHM 6620 with a minimum grade of C-

**BIO 6165 Biodiversity Changes in the Anthropocene Cr. 4**

This course is a study of the Anthropocene—what scientists argue is our current epoch in geologic time—emphasizing changes in Earth's biodiversity as a result of human activities. Following an introduction to the Anthropocene, how it can be defined, and key ecological principles of biodiversity, we will explore the history and context for various types of human-influenced change. We will then survey seven human drivers of biodiversity change—from climate and chemical changes to habitat alteration and resource use and finally species transport (including modern pandemics) and invasion. We will wrap up the course examining past, present, and future tipping points, shifting baselines, goals and targets for management, and attitudes. Through this course, you will be challenged to consider both domestic and global (indigenous and western) perspectives of biodiversity change and issues concerning environmental justice. Emphasis will be placed on biodiversity shifts as influenced by humans. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ESG 6165

**BIO 6180 Membrane Biology Cr. 3**

Comprehensive analysis of cellular and model membranes integrating molecular structure and physiological properties. Structural, dynamic, and physiological properties examined, including molecular and macromolecular assemblies, physical and chemical analysis of molecular motion, functional aspects including trans-membrane signaling. Offered Intermittently.

**Prerequisite:** BIO 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BIO 6185 Environmental DNA for Ecosystem Monitoring and Conservation Cr. 4**

This course is a study of environmental DNA principles, approaches, and applications to study anthropogenic change in the environment.

Following an introduction to the field of eDNA, challenges and limitations, early landmark studies, and applications in a variety of ecosystems and types of research questions, we will shift our focus to the technical background for designing an eDNA study—including how eDNA samples are collected, processed, and analyzed— and wrap up with considerations of the future of DNA metabarcoding. Emphasis will be placed on eDNA as a tool for studying environmental changes caused by humans. Offered Yearly.

**Prerequisites:** BIO 3070 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ESG 6180

**BIO 6190 Advanced Special Topics Cr. 6**

Formalized treatment of current state of knowledge in a significant area of biology. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Repeatable for 6 Credits**

**BIO 6195 Environmental Microbiology Cr. 4**

This course is a study of microbial diversity, approaches, and anthropogenic change in the environment. Following an introduction to the field of environmental microbiology, emerging global issues, and exploration of microorganisms in various habitats, we will focus on recent advances in characterization of microorganisms, pathogen transmission (including modern day pandemics), indicators of ecosystem health, and risk assessment. Through this course, you will also develop an understanding of how environmental microbiological samples are collected and processed, analyze how to track microbial sources and transport, and evaluate how microbiota interact with pollutants and ecosystems. Emphasis will be placed on microbiotic changes in the environment as influenced by humans. Offered Yearly.

**Equivalent:** ESG 6190

**BIO 6330 Principles and Applications of Biotechnology II Cr. 3**

Application of molecular biology and recombinant DNA technology of contemporary eukaryotic systems. Topics include: specialized application of PCR for cloning, generation of antibodies, the expression of recombinant proteins in cultured cells and transgenic animal models. Offered Winter.

**Prerequisite:** BIO 5330 with a minimum grade of C-

**BIO 6420 Ecotoxicology and Risk Assessment Cr. 3**

Provides students with an overview of ecological and environmental aspects of toxicology and pollution biology. The course will emphasize population, community, and ecosystem responses to contaminants. General understanding of ecology, chemistry, and basic statistics is essential. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.



**BIO 6490 Molecular and Cellular Neurobiology Cr. 3**

The brain is the most complex object known to man and is the storehouse of our lives. In the past century, humanity has made great strides in our understanding of the brain. In this class, we take a reductionist approach to understanding how the brain works. We start with exploring the basic mechanisms by which neurons process information by studying electrical signaling (Unit I) and chemical signaling (Unit II). These then serve as a foundation for building up an integrated appreciation for how the nervous system interacts with the outside world (Unit III). Taken together, this class provides the foundation for understanding how neurons work individually, in concert, to form the nervous system. This class will also prepare students for approaching more advanced topics in neuroscience. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 6510 Molecular Interactions Cr. 1**

Introduces to methods to study biomolecular interactions. Topics covered will include yeast two-hybrid, protein tagging, protein chips, DNA/RNA footprinting, DNase, MNase, hypersensitivity, ATAC-seq, ChIP-PCR, ChIP-chip, ChIP-seq, HITS-CLIP, PAR-CLIP, three hybrid, Co-immunoprecipitation, EMSA, fluorescence polarization and FRET, SPR, isothermal calorimetry and microscale thermophoresis, proximity labeling and lipid: protein interactions. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 6520 Gene Expression Manipulation Systems Cr. 1**

Introduces methods to manipulate gene expression. Topics include: Bacterial transformation methods - natural vs artificial competency, conjugation, phage transduction. Eukaryotic cell culture transfection methods - transient and stable. Transgenic organism manipulation: methods for gene knock-out and inducible expression including - homologous recombination, site specific recombination, Lambda red recombination, markerless in-frame deletion, Cre-Lox, transposons, RNAi, CRISPR, TALENS, P-element mutagenesis, inducible/repressible promoters, expression reporters. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 6530 Protein Structure and Dynamics Cr. 1**

Provides a solid understanding of the structure of proteins, their physiological functions, and an understanding that the molecular basis of a number of diseases is associated with protein abnormalities. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 6540 Principles of Genetic Analysis Cr. 1**

Emphasizes the theory and applications of modern genetic methods of analysis. Practical and theoretical aspects of methods will be considered. Exams and quizzes will focus on concepts, experimental design and strategy. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 6690 Special Topics in Neurobiology Cr. 3**

This course will enable students to apply their knowledge of neurobiology to explore a current research area in depth. The course will involve reading and discussing articles from the scientific literature. Offered Winter.

**Prerequisites:** BIO 3200 with a minimum grade of C-

**BIO 6700 Responsible Conduct of Research Cr. 1**

Fulfills federal requirements for in person faculty-led training in scientific ethics and responsible conduct of research. Offered Fall.

**BIO 6890 Introduction to Research Practice - Honors Cr. 1**

Provides instruction in basic laboratory safety and accepted standards for research conduct. It will provide professional development and networking opportunities for students interested in careers in research and the biomedical sciences. Instruction may be provided in the form of reading assignments, discussions, lectures and case studies. It is a co-requisite for students enrolling in BIO 6891-6894 for the first time. Offered Every Term.

**Prerequisites:** BIO 6891-6894 with a minimum grade of C- (may be taken concurrently)

**BIO 6891 Honors Undergraduate Research in Biological Sciences Cr. 1**

Original research performed under the guidance of a faculty member. Registration is by permission only. Offered Every Term.

**Prerequisites:** BIO 6890 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 5 Credits**

**BIO 6892 Honors Undergraduate Research in Biological Sciences Cr. 2**

Original research performed under the guidance of a faculty member. Registration is by permission only. Offered Every Term.

**Prerequisites:** BIO 6890 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 6 Credits**

**BIO 6893 Honors Undergraduate Research in Biological Sciences Cr. 3**

Original research performed under the guidance of a faculty member. Registration is by permission only. Offered Every Term.

**Prerequisites:** BIO 6890 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 6 Credits**

**BIO 6894 Honors Undergraduate Research in Biological Sciences Cr. 4**

Original research performed under the guidance of a faculty member. Registration is by permission only. Offered Every Term.

**Prerequisites:** BIO 6890 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 8 Credits**

**BIO 6990 Honors Directed Study in Biology Cr. 1-4**

To be taken under direction of Biological Sciences faculty. Offered for undergraduate credit only Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Biological Sciences Honors or Biological Sciences; enrollment is limited to Undergraduate level students; enrollment limited to students in a BS in Biological Science or Bachelor of Arts degrees.

**Repeatable for 99 Credits**

**BIO 6994 Technical Communication in Molecular Biotechnology Cr. 3**

Methods of written and oral communication in the biotechnology field. Offered Winter.

**BIO 6999 Honors Undergraduate Research Thesis Cr. 2**

Preparation of a thesis, satisfactory completion of which assures Honors graduation, providing performance in preceding Honors courses has been at Honors level; to be taken under direction of Biological Sciences faculty. Offered for undergraduate credit only. Offered Every Term.

**Prerequisite:** BIO 6891 with a minimum grade of C- or BIO 6892 with a minimum grade of C- or BIO 6893 with a minimum grade of C- or BIO 6894 with a minimum grade of C- or BIO 6990 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Biological Sciences Honors; enrollment is limited to Undergraduate level students.

**BIO 7000 Recent Advances in Cellular and Developmental Biology Cr. 3**

Formalized and in-depth treatment of the current state of knowledge in a significant area of cell and molecular biology. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**BIO 7011 Principles of Toxicology Cr. 3**

Basic concepts and principles of toxicology, including toxicity of major classes of chemicals (pesticides, solvents, metals) and organ systems (renal, immune, digestive, neuro and respiratory) affected. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PHC 7410

**BIO 7020 Comprehensive Virology Cr. 3**

Course provides students with a comprehensive knowledge of molecular virology, from viral classification, vital structures and life cycles, to host response and global health. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7040 Signaling Transduction Mechanisms Cr. 3**

Overview of signaling strategies and mechanisms used by prokaryotes and eukaryotes (including plants) to sense and respond to extracellular or intracellular stimuli. Additional study of bioinformatic, biochemical, and genetics approaches to characterization of signaling proteins, systems and networks. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7045 Biometry Cr. 4**

Provides practical tools for the design of experiments, data exploration and statistical analysis of data. Prepares students to begin to design scientific studies and experiments, critically evaluate data and test hypotheses via data analysis. While the course will delve into some underlying statistical theory, a major emphasis will be providing exposure to and hands-on experience with basic approaches to the analysis of univariate and multivariate data. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7055 Biology of the Eye Cr. 3**

Integrated introduction to basic biological structure/function of the eye; causes and clinical treatments of eye-related disorders and diseases. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ANA 7055

**BIO 7060 Evolutionary and Developmental Biology Cr. 3**

Introduction to animal diversity. Genetic pathways and networks in development; focus on limb and organ formation. Evolving developmental pathways: case studies. Genetic source materials for developmental evolution. Speciation and developmental evolution. Offered Every Other Year.

**Prerequisite:** BIO 5620 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7090 Molecular Genetics of Development Cr. 3**

An examination of the current and classical research literature dealing with the role of gene action in development. Offered Intermittently.

**Prerequisite:** BIO 5620 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7110 Aquatic Ecology Cr. 4**

Physical, chemical and biological processes occurring in lakes, streams, and wetlands. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$67

**BIO 7150 Genomics Cr. 3**

Introduction to the theory and practice of genomics. Topics include sequencing and mapping, overview of genomes, comparative genomics, transcriptomes, population genetics and genomics, basic bioinformatics and statistics, population-level variation (SNPs, MNPs, indels), ethics, evolutionary genomics, and functional genomics. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7180 Membrane Biology Cr. 3**

Comprehensive analysis of cellular and model membranes integrating molecular structure and physiological properties. Structural, dynamic, and physiological properties examined, including molecular and macromolecular assemblies, physical and chemical analysis of molecular motion, functional aspects including trans-membrane signaling. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7240 Molecular Systems Biology Cr. 3**

Introduces the basic design principles of biological circuits and networks and their functional designs at the molecular, pathway, whole cell, and population levels. Students will perform a comprehensive group project to build a computational model of a simple biological network. Offered Every Other Year.

**Prerequisites:** BIO 3070 and PHY 2140

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7280 Bioinformatics Cr. 3**

Basic Linux commands and PERL programming skills, sequence comparison, phylogenetic analysis, gene/genome patterns. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7300 Communication of Research Cr. 2**

During this course, students will learn to present scientific results and make compelling scientific arguments orally, visually and in written form. In addition, students will learn to professionally and constructively critique the work of others. Students will also prepare a professional resume/CV and cover letter for job applications. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7310 Sustainability of Urban Environmental Systems Cr. 2**

Students will be introduced to topics in urban sustainability from multiple disciplinary perspectives such as: ecology, anthropology, communication, engineering, economics and urban planning. Questions in fostering a more sustainable urbanism will be introduced and evaluated. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** CE 7311

**BIO 7350 Microbial Biofilms Cr. 3**

The objective of the course is understand the features, and molecular mechanisms used by bacteria to build or disperse microbial biofilms. Students will learn the techniques and tools used to research microbial biofilms. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7440 Terrestrial Ecology Cr. 4**

Ecology of forests and grasslands. Field study and interpretation of ecological processes. Importance of species-site relationships and disturbance history. Offered Every Other Year.

**Prerequisite:** BIO 1500 with a minimum grade of C- and BIO 4130 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$110

**BIO 7490 Population and Community Ecology Cr. 3**

Population dynamics of animals and plants. Life history theory. Species interactions. Structure and dynamics of communities. Offered Every Other Year.

**Prerequisite:** BIO 1500 with a minimum grade of C- and BIO 4130 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7510 Eukaryotic Gene Structure and Function Cr. 2**

Knowledge of current molecular technology is absolute prerequisite for this course; prerequisite course must have been satisfied. Analysis of structure, replication, expression and regulation of eukaryotic genome. Experimental approaches to study eukaryotic gene expression, critical comprehension of current research, design of experiments in gene expression. Offered Every Other Year.

**Prerequisite:** BIO 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7520 Nucleic Acid Laboratory Cr. 2**

The objective of the course is to provide students an in-depth understanding of nucleic acid related techniques, and their practical application in a research lab. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$125

**BIO 7530 Proteins Laboratory Cr. 2**

The objective of the course is to provide students an in-depth understanding of protein purification and related techniques, and their practical application in a research lab with emphasis on: Cell lysis procedures, selection of buffer ingredients for purification, an understanding of different chromatographic procedures, and the analysis of proteins by different type of electrophoretic procedures and Western blot. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$125

**BIO 7540 Landscape Ecology Cr. 3**

Concepts, methods, and applications of landscape ecology. Causes and implications of ecological patterns and heterogeneity on landscapes. Interrelationships of patterns and ecological processes. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7560 Light Microscopy and Imaging Cr. 2**

The objective of the course is to provide students an in-depth understanding of current microscopy and imaging technology. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$125

**BIO 7610 Infections and Innate Immunity Cr. 3**

There is a constant arms race between pathogens and their hosts. Tipping the balance decides outcomes and severity of infections. The hosts equip multiple lines of defense against the invading pathogens, meanwhile, the pathogens use a wide variety of arsenals to counteract host defense. This course is designed to introduce infection strategies used by pathogens and anti-microbial responses in the host cells at cellular and molecular levels. The course covers the interactions between hosts and microbes, including small molecules, post-translational modifications, protein interactions, signaling transduction and molecular machineries. Understanding these mechanisms during host-microbe interactions will provide important foundation for developing potential therapeutics. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy, Master of Arts or Master of Science degrees.

**BIO 7660 Neural Signaling in Health and Disease Cr. 3**

Addresses major principles of how various brain systems regulate physiological processes of the body function, both individually and as an integrated unit. Includes principles of physiological communication as it relates to homeostasis, metabolism, and both neural and endocrine communication; emphasis is given not only to major principles but also to how these principles were developed. Topics include (but are not limited to) dysfunction and disorders of the central nervous system (CNS) in the context of signaling pathways and hormonal systems, neurodegeneration, interaction between neurons and glia cells and neuroinflammation. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7740 General Entomology Cr. 4**

This course will focus on introducing students to the taxonomy (identification), natural history, ecology, and evolutionary biology of the Class Insecta and related taxa. Through in class lectures and inside and outside the classroom lab-based activities, students will have the opportunity to apply the process of science to tap into the interdisciplinary nature of entomology. More specifically, after successfully completing this course, you should be able to sight-identify the major insect orders and species that exist in urban and suburban Detroit, and have a thorough understanding of the biology and evolution of insects, their diversity, their role in natural ecosystems, the basics of their physiology, development, and behavior, and the many important ways they affect human life. Students cannot earn credit for both BIO 5740 and BIO 7740. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$60

**BIO 7750 Biology of Longevity Aging Cr. 3**

Longevity, aging and senescence viewed as fundamental biological processes common to most organisms. Data-based discussion of investigative methods and accepted facts regarding the mechanisms underlying longevity and aging, coupled with critical discussion of behavioral and biological interventions known to retard or reverse the aging processes. Systems biology overview of the process, including societal parameters necessary to the maintenance of longevity. Offered for graduate credit only. Offered Winter.

**Prerequisite:** BIO 3070 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7777 Chemistry Biology Interface Seminar Series Cr. 1**

The Chemistry Biology Interface (CBI) seminar series will expose students to CBI-related research, CBI-related professional development activities, review of current literature, topics in rigor and reproducibility, and networking social activities. These activities will be in the format of presentations, panel discussions, workshops, small group discussions, or social activities. The goal is for graduate students from discipline-specific fields to move across a multi-disciplinary landscape, or for students already working in inter-disciplinary fields, such as chemical biology, to gain new expertise in specific disciplines. Beyond scholarly goals, the seminar series will enrich the graduate experience by providing career guidance, non-laboratory skill development, training in rigor and reproducibility, and professional networking. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** CHM 7777, PSC 7777

**BIO 7890 Neuroplasticity Cr. 3**

Neuroplasticity is the study of the ways the brain changes in response to genetic controls, and to the internal and external environments. Neuroplasticity includes neural development (neurogenesis and migration, neural differentiation, axon pathway formation, and synapse formation and maturation), mechanisms of learning and memory, homeostasis of excitability, aging, diseases, and responses to injury. To explore these topics, students will read and discuss readings from their textbook and seminal research articles from a variety of animal models, and run simulations. No credit after BIO 5890. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 7996 Research Problems Cr. 1-8**

Original investigation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 998.99 Credits**

**BIO 7999 Master's Biotechnology Research Report Cr. 3**

The purpose of the course is to help students document research findings during the study and scientifically present these findings in both written and oral formats. Through the course, students will improve their critical thinking and reasoning skills, analyses and presentation of scientific data, effective scientific communication skills and further develop skills to document scientific discoveries. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Molecular Biotechnology; enrollment is limited to Graduate level students.

**BIO 8888 Survey of Research at the Chemistry Biology Interface Cr. 3**

The Chemistry Biology Interface course will teach students how to apply chemical approaches to study complete biological processes. It will commence with a basic overview of the biochemistry of biomolecules. Next, complex biological processes related to various diseases will be highlighted by introducing cell biology, model cells and organisms, and disease mechanisms. Finally, the course will highlight contemporary examples of how chemical methods are used to answer complex biological questions to show the value and innovation available by taking a multidisciplinary approach. The focus will be on development of skill sets that are applicable for research at the chemistry biology interface, rigor and transparency in data collection and analysis, and identification of cross-disciplinary research at Wayne State. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** CHM 8888, PHC 8888, PSC 8888, PSL 8888

**BIO 8995 Graduate Seminar in Biology Cr. 2**

Presentations by graduate staff, advanced students, visiting lecturers. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Biological Sciences; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy or Master of Science degrees.

**Repeatable for 4 Credits**

**BIO 8996 Research in Molecular Biotechnology Cr. 1-4**

Students spend two semesters doing research under the guidance of faculty associated with the Molecular Biotechnology Program and in other laboratories. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**BIO 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**BIO 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**BIO 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BIO 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BIO 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BIO 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**BIO 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

**BIO 9996 Lab Rotation Cr. 2**

Research training in faculty laboratories on a rotating basis, up to two labs per semester. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

## BLW - Business Law

**BLW 2510 Business Law I Cr. 3**

Introduction to the domestic and international legal systems as they relate to business. Impact of the legal environment on management decision-making and the legal and ethical implications of contracts and sales, including product liability. No credit after ACC 2510. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**BLW 5190 Business Law II Cr. 3**

Legal, ethical and managerial implications of various forms of organizing and operating a business; corporations, partnerships, limited liability companies, sole proprietorships. Negotiable instruments and the banking system; agency and professional liability. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** BLW 2510 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**BLW 7220 Business Law II Cr. 3**

Law governing business corporations; fiduciary duties of managers and directors in situations such as mergers, acquisitions, securities offerings, market domination, litigation. No credit after ACC 7220. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.



# BMB - Biochemistry and Molecular Biology

## **BMB 7010 General Biochemistry Lecture Cr. 4**

Introduction to biochemistry: structure of biological molecules, enzymes, bioenergetics, intermediary metabolism. Biosynthesis of DNA, RNA, and proteins. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **BMB 7015 Introduction to Metabolism Cr. 2**

An introduction to intermediary metabolism of carbohydrate, lipids, amino acids and proteins. Focuses on the metabolic pathways involved in the synthesis and degradation of metabolites. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PSL 7015

## **BMB 7020 Biochemistry Laboratory Rotation Cr. 1-4**

Research in labs with various faculty. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Biochem, Microbio & Immunology.

**Repeatable for 8 Credits**

## **BMB 7030 Core Concepts in Technologies in Biochemistry and Molecular Biology Cr. 4**

Methods-based approach to understanding core concepts in biochemistry and biotechnology. Students acquire competence enabling them to explain and implement these approaches. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **BMB 7140 Foundations of Data Science Cr. 3**

Introduction to basic concepts of linear algebra and their application to data analysis. MATLAB and PYTHON programs are introduced and employed as tools for practical implementation of computational methods. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** IBS 7140

## **BMB 7320 Protein Structure and Function Cr. 3**

Structure, function, and design of proteins: architecture, function, regulation, assembly and evolution of proteins and protein complexes; theory and techniques of kinetic analysis; newer techniques of protein design and engineering. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** IBS 7320

## **BMB 7330 Advanced Molecular Biology Cr. 2**

Modern topics in biochemistry, including nucleic acid dynamics, genomic structure, DNA replication and repair, transcription, RNA processing, translation and protein synthesis. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** IBS 7330

## **BMB 7360 Advanced Structural Biology Cr. 2**

Determination of structure and dynamics of biological molecules by NMR and crystallography; emphasis on protein structure and function. Offered Winter.

**Prerequisites:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

## **BMB 7670 Advanced Biochemistry Laboratory Cr. 2-10**

Advanced laboratory techniques as applied to investigations of biological materials. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **BMB 7890 Journal Club Cr. 1**

Student presentations of papers from recent literature or their own research. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Biochemistry&Molecular Biology or Immunology and Microbiology; enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

## **BMB 7996 Research Cr. 1-15**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 30 Credits**

## **BMB 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## **BMB 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

## **BMB 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **BMB 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BMB 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

## **BMB 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BMB 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

## **BMB 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BMB 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

## **BMB 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

# BME - Biomedical Engineering

## **BME 1900 Biomedical Engineering Freshmen Seminar Cr. 1**

This course is designed to expose students to the Wayne State University undergraduate experience. Lectures will focus on presenting an overview of the world of biomedical engineering. Students will gain an understanding of campus resources, how to be successful undergrads, how to make connections with their cohort and faculty members, all while learning about possible career paths in the engineering field and Wayne State's role in achieving their career goals. Offered Winter.



**BME 2050 Introduction to Anatomy and Physiology for Biomedical Engineers Cr. 4**

Detailed study of the anatomical structure and physiological function of the major systems of the body: skeletal, nervous, muscular, endocrine, circulatory, respiratory, digestive, excretory, and reproductive. Relevant biomedical engineering applications related to these major systems of the body. Offered Yearly.

**Prerequisites:** BIO 1510 with a minimum grade of C-

**Corequisite:** BME 2920

**BME 2910 Biomedical Engineering Design Lab I Cr. 1**

Application of engineering principles to biomedical engineering problems through laboratory and design exercises. First of a four-semester sequence; analysis of musculoskeletal forces biomechanics. Offered Fall.

**Prerequisites:** BE 1200 with a minimum grade of C-, BE 1300 with a minimum grade of C-, BE 1310 with a minimum grade of C-, BE 1500 with a minimum grade of C-, MAT 2010 with a minimum grade of C-, MAT 2020 with a minimum grade of C-, (CHM 1125 with a minimum grade of C- or CHM 1130 with a minimum grade of C-), and (PHY 2170 with a minimum grade of C- or PHY 2175 with a minimum grade of C-)

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering or Biomedical Engg Honors; enrollment is limited to Undergraduate level students.

**Fees:** \$25

**BME 2920 Biomedical Engineering Design Lab II Cr. 1**

Application of engineering principles to biomedical engineering problems through laboratory and design exercises involving tissue biomechanics. Introduction to finite element modeling. Second of a four-semester sequence. Offered Winter.

**Prerequisites:** BE 2100 with a minimum grade of C- (may be taken concurrently), BME 2910 with a minimum grade of C-, and ME 2420 with a minimum grade of C- (may be taken concurrently)

**Corequisite:** BME 2050

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering or Biomedical Engg Honors; enrollment is limited to Undergraduate level students.

**Fees:** \$25

**BME 3010 Biomedical Transport Cr. 3**

This is an introductory course of transport phenomena in biological systems. It will cover conservation relations in fluid and mass transport mass at the tissue and cellular levels. Topics including mass transport by diffusion with effects of convection and chemical reactions will be covered. Applications of fundamental principles using quantitative, computational approaches will be emphasized. Offered Fall.

**Prerequisites:** BE 1500 with a minimum grade of C- and MAT 2150 with a minimum grade of C-

**Corequisite:** BME 2920

**BME 3470 Biomedical Signals and Systems Cr. 3**

Mathematical, engineering and computer techniques for describing and analyzing biomedical signals, including ECG, EEG, EMG, blood pressure, and tomographic images. Offered Fall.

**Prerequisites:** (ECE 3320 with a minimum grade of C- (may be taken concurrently) or ECE 3300 with a minimum grade of C- (may be taken concurrently)), (PHY 2185 with a minimum grade of C- or PHY 2180 with a minimum grade of C-), and MAT 2150 with a minimum grade of C-

**Corequisite:** BME 3910

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$50

**BME 3910 Biomedical Engineering Design Lab III Cr. 1**

Application of engineering principles to biomedical engineering problems through laboratory and design exercises. Focus on measurement, analysis, modeling, and interaction with biomedical signals from living systems. Third of a four-semester sequence. Offered Fall.

**Prerequisites:** BE 1500 with a minimum grade of C-, MAT 2150 with a minimum grade of C-, ENG 3050 with a minimum grade of C- (may be taken concurrently), BME 3010 with a minimum grade of C- (may be taken concurrently), ME 2420 with a minimum grade of C-, and BME 2920 with a minimum grade of C-

**Corequisite:** BME 3010

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering or Biomedical Engg Honors; enrollment is limited to Undergraduate level students.

**Fees:** \$25

**BME 3920 Biomedical Engineering Design Lab IV Cr. 2**

Application of engineering principles to biomedical engineering problems through laboratory and design exercises. Introduction to the capstone design process. Integration of the design process with the complete government regulation system for medical device design. Use of advanced CAE tools for analysis. Fourth of a four-semester sequence. Offered Winter.

**Prerequisites:** BME 3910 with a minimum grade of C- and BME 3470 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering or Biomedical Engg Honors; enrollment is limited to Undergraduate level students.

**Fees:** \$100

**BME 4010 Engineering Physiology Laboratory Cr. 2**

Measurement and analysis of physiological signals on living systems, with a focus on neural, cardiovascular, respiratory, and muscular systems. Includes a student-designed experiment on a physiological system. Offered Winter.

**Prerequisites:** BME 2050 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering or Biomedical Engg Honors; enrollment is limited to Undergraduate level students.

**Fees:** \$30

**BME 4210 Introduction to Biomechanics Cr. 3**

Broad introduction to the application of mechanical engineering principles to biomedical engineering, including motion analysis, injury and forensic biomechanics, cardiovascular and pulmonary mechanics, and design of implants with mechanical functions. Offered Winter.

**Prerequisite:** ME 2420 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**BME 4310 Introduction to Biomaterials Cr. 3**

Broad introduction to the field of biomaterials and its application to tissue engineering, implant design, controlled drug delivery, and designer materials for therapeutic use. Offered Winter.

**Prerequisite:** ME 2420 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the BS in Biomedical Engineering program.

**BME 4410 Introduction to Biomedical Instrumentation Cr. 3**

Broad introduction to the use and design of instrumentation for biomedical applications, in both clinical and research use; includes filtering techniques, safety issues, and special concerns for implanted and external systems. Offered Winter.

**Prerequisites:** BME 3470 with a minimum grade of C- and (ECE 3300 with a minimum grade of C- or ECE 3320 with a minimum grade of C-)

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$25

**BME 4910 Biomedical Engineering Capstone Design I Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency First in a two-semester sequence during which student teams develop a design to address a biomedical engineering challenge; includes discussions with clinical faculty, analysis of current solutions, and finalization of conceptual design. Offered Fall.

**Prerequisite:** BME 3920 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students with a major in Biomedical Engineering or Biomedical Engg Honors.

**Fees:** \$50

**BME 4920 Biomedical Engineering Capstone Design II Cr. 3**

Second of a two-semester sequence. Students develop and test a prototype of their biomedical engineering design; culminates in a public design expo to exhibit student designs. Offered Winter.

**Prerequisite:** BME 4910 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Biomedical Engineering or Biomedical Engg Honors; enrollment is limited to Undergraduate level students.

**Fees:** \$50

**BME 5010 Quantitative Physiology Cr. 4**

Basic principles of human physiology presented from the engineering perspective. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by mathematical models where feasible. Offered Fall, Winter.

**Equivalent:** CHE 5100, ECE 5100, ME 5100

**BME 5020 Computer and Mathematical Applications in Biomedical Engineering Cr. 4**

Application of numerical methods in biomedical engineering. Programming algorithms and development of data analysis interfaces using Matlab and Excel. Development and refinement of mathematical models, binary data storage and round-off error, algorithm truncation error, and application of Taylor series for function approximation, error estimation, and algorithm development. Numerical methods for solving: roots of equations, systems of linear equations, system optimization, regression and interpolation, integration, differentiation, and ordinary and partial differential equations. Attention is focused on application of techniques within biomedical engineering. Offered Fall, Winter.

**BME 5070 Anatomy for Engineers Cr. 4**

A cadaver based anatomy course for undergraduate students and MS-level students in biomedical engineering. This hands-on course is intended to give the students directed experience of the study of human anatomy in relation to engineering principles. The histological study of tissues in relation to mechanical function of the organism is included in this study. Offered Fall.

**Prerequisites:** BME 2050 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**Fees:** \$225

**BME 5130 Vehicle Safety Engineering Cr. 4**

Role of vehicle in road safety, occupation and pedestrian injury mechanisms, measures of vehicle safety performance, driver behavior and vehicle interface. Use of new technology to improve vehicle safety. Offered Winter.

**BME 5210 Musculoskeletal Biomechanics Cr. 4**

Structure and properties of the major tissue components of the musculoskeletal system and evaluation of how tissues combine to provide support and motion to the body. Offered Fall.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Equivalent:** ME 5160

**BME 5220 Cellular and Tissue Biomechanics Cr. 3**

Introduces biomechanics on the cellular to the tissue level. We will be studying mediators of cell mechanics such as the cytoskeleton, extracellular matrix and receptor-ligand interactions. Topics include cell adhesion, cell motility, and hemodynamics. Understanding of these topics will lead to discussion of translation of these forces up to the tissue level and subsequent tissue function. Offered Fall.

**Prerequisites:** MAT 2010 with a minimum grade of C- and MAT 2020 with a minimum grade of C-

**BME 5310 Device and Drug Approval and the FDA Cr. 3**

Government regulations and industrial procedures that lead to device/drug approval. Offered Spring/Summer.

**BME 5320 Fundamentals in Implant Technology: Principles and Limitations Cr. 3**

This course will describe the limitations of medical devices based on issues arising from body's immune defense system in regards to chemical biocompatibility and device biomechanics. Thus, the first portion will discuss the immune system with respect to both acute and chronic inflammation, the foreign body reaction, biomechanical factors such as motion and pressure to give rise to interfacial stressors and the processes involved in the tissue responses. The second portion will discuss examples and applications of implantable medical devices. We will also discuss biofilm formation, drug delivery applications and biomedical ethics topics relevant to the biomedical engineers and scientist. Finally, the course will address issues of intellectual property and patent acquisition. Offered Fall.

**BME 5370 Introduction to Biomaterials Cr. 4**

Introduction to study of both biological materials (bone, muscle, etc.) and materials for medical applications. Topics include tissue properties and effects of pathology, biocompatibility, and design considerations. Offered Winter.

**Prerequisites:** BME 5010 with a minimum grade of C- (may be taken concurrently)

**Equivalent:** ME 5180

**BME 5380 Biocompatibility Cr. 4**

Introduces concepts and applications of biocompatibility. Cellular response to implants (e.g. prosthetics, gene therapies, cells, etc.) will be covered in detail, including wound healing, immune response, and foreign body response. Topics include stem cell effects; in vitro and in vivo studies; and synthetic and natural material body response. The course material will be applicable to implant design, gene therapies, and stem cell treatments. Offered Winter.

**Prerequisites:** BIO 1050 with a minimum grade of C-, BIO 1500 with a minimum grade of C-, or BIO 1510 with a minimum grade of C-

**Equivalent:** MSE 5385

**BME 5425 Robotic Systems I Cr. 4**

Introduction to robot kinematics and control. Computational algorithms for robot movement, sensor fusion, and intelligent behavior, which are needed to build a system that performs actions and interacts with its environment. Offered Fall.

**Prerequisites:** BE 2550 with a minimum grade of C-, BE 1500 with a minimum grade of C-, BME 5020 with a minimum grade of C-, or ECE 3040 with a minimum grade of C-

**Equivalent:** ECE 5425

**BME 5570 Design of Human Rehabilitation Systems Cr. 3**

This course provides basic to advanced knowledge in the field of rehabilitation engineering. The course will cover engineering principles required to 1) develop technological solutions and devices to assist individuals with disabilities and 2) aid the recovery of physical functions lost due to disease or injury. Special emphasis will be placed on learning techniques for measuring, processing, and interpreting movement biomechanics during locomotion. Students will apply these skills to develop and test orthotics and neural prosthetics. Offered Winter.

**Prerequisites:** BME 4210 with a minimum grade of C-

**BME 5990 Directed Study Cr. 1-4**

Independent projects on subjects in the field of biomedical engineering. Offered Every Term.

**Repeatable for 4 Credits**

**BME 5995 Special Topics in Biomedical Engineering I Cr. 1-4**

Topics as announced in Schedule of Classes. Offered Intermittently.

**Repeatable for 12 Credits**

**BME 6130 Accident Reconstruction Cr. 3**

Passenger car and light truck behavior in collisions; recognition of roadway markings and vehicle damage used to analyze vehicle accidents and to use that evidence to reconstruct driver, vehicle and occupant dynamics at the time of the collision. Offered Spring/Summer.

**BME 6470 Smart Sensor Technology I: Design Cr. 3**

Introduction to various types of sensors and the design of basic analog VLSI circuit building blocks. Offered Winter.

**Prerequisites:** PHY 2185 with a minimum grade of C- or PHY 2180 with a minimum grade of C-

**Equivalent:** ECE 6570, PHY 6570

**BME 6480 Biomedical Instrumentation Cr. 4**

Engineering principles of physiological measurements, signal conditioning equipment, amplifiers, recorders and transducers. Recent advances in instrumentation. Offered Winter.

**Prerequisites:** BME 5020 with a minimum grade of B- and ECE 3300 with a minimum grade of C-

**Equivalent:** ECE 6180, ME 6180

**BME 6991 Internship in Industry Cr. 1-6**

Industrial internship in biomedical engineering. Offered Every Term.

**Repeatable for 6 Credits**

**BME 7020 Cardiovascular Systems Modeling Cr. 4**

Application of engineering principals and mathematical and computational techniques to cardiovascular systems. Partial differential equations, signal transduction pathway and biotransport modeling, and introduction to systems biology approaches. Offered Winter.

**Prerequisites:** BME 5010 with a minimum grade of B- or BME 5020 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PSL 7120

**BME 7100 Mathematical Modeling in Impact Biomechanics Cr. 4**

Review of models created for impact simulations. Regional impact simulation models. Human and dummy models subject to various restraint systems. Offered Intermittently.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ECE 7100, IE 7100, ME 7100

**BME 7120 Applied Finite Element Methods in Biomechanical Analysis Cr. 4**

Structural, stress, and strain analysis of the human body and/or artificial implants, using realistic biomechanical data for relevant tissues and material. Theoretical background and applied analysis. Offered Intermittently.

**Prerequisite:** BME 5010 with a minimum grade of C or BME 5070 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**BME 7150 Biomechanics of Blast-Related Injuries Cr. 3**

This course covers new and old information developed by military researchers on injuries sustained by military personnel due to explosions or blasts caused by a variety of weapon systems. Injuries to body regions from head to foot are discussed. Particular emphasis is placed on injuries to the spine and lower extremities for the mounted soldier and on brain injury for both the mounted and dismounted soldier. The course includes the modeling of blast and blast-related effects on selected body regions. Offered Fall.

**Prerequisite:** BME 7100 with a minimum grade of B- or BME 7160 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**BME 7160 Impact Biomechanics Cr. 4**

Biomechanical response of the body regions and the whole body to impact. Mechanisms of injury in blunt impact. Effects of restraints on injury reduction. Development of test surrogates such as dummies. Offered Fall.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**Equivalent:** ME 7160

**BME 7170 Experimental Methods in Impact Biomechanics Cr. 4**

Lecture and laboratory combined; principles of impact testing; hands-on experience in use of impact-test equipment, including sled, pendulum, other types of impactors, and drop-test techniques. Offered Every Other Winter.

**Prerequisite:** BME 6480 with a minimum grade of B- and (BME 7100 with a minimum grade of B- or BME 7160 with a minimum grade of B-)

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$100

**BME 7180 Advanced Topics: Impact Biomechanics Cr. 4**

A seminar format course in which advanced topics in impact biomechanics are investigated and presented by the class. Topics will include sports biomechanics (protective gear evaluation, standards certification, etc.) ballistic impacts (behind body armor effects, kinetic energy munitions, standards) and other various topics. The focus of the class will be the critical evaluation and review of literature. Offered Every Other Winter.

**Prerequisite:** BME 7160 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**BME 7300 Advanced Topics in Biomaterials and Tissue Biomechanics Cr. 4**

Seminar format: advanced topics presented to the class; lectures by the instructor and by the participants based on literature reviews. Topics determined by student interest. Offered Every Other Fall.

**Prerequisite:** BME 5210 with a minimum grade of C or BME 5370 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ME 7180, MSE 7180

**BME 7390 Tissue Engineering and Hybrid Systems Cr. 4**

Seminar and project based approach to the design, development, analysis and application of organ and tissue replacement systems which incorporate processed materials and living cells. Offered Fall.

**Prerequisites:** BME 5370 with a minimum grade of C and (CHE 7100 with a minimum grade of C or BME 5020 with a minimum grade of C)

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** CHE 7390

**BME 7425 Robotics Systems II Cr. 4**

Project-based class to understand technology that interfaces computer engineering, software design, electronics and sensors with robotics. Advanced application areas of robotics will be covered including medical, military, space, vehicle robotics. Completion of ECE/BME 5425 Robotic Systems I is recommended prior to registering for this course. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** ECE 7425

**BME 7470 Smart Sensor Technology II: Characterization and Fabrication Cr. 4**

Integration of ongoing research in integrated technology of smart sensors. Design of smart sensor devices using computer simulation. Fabrication of smart sensor. Offered Spring/Summer.

**Prerequisite:** BME 6470 with a minimum grade of B- or ECE 6570 with a minimum grade of B- or PHY 6570 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$50

**Equivalent:** ECE 7570, PHY 7580

**BME 7670 Experimental Methods in Physiology Cr. 3**

Basic principles and techniques for monitoring and reading EMGs, EEGs, ECGs, respiratory cycle, pulmonary function, galvanic skin response and polygraph, human acceleration response. Designing and carrying out a project involving human body acceleration measures and EMG responses; a second project will be designed and carried out using measurement techniques chosen by the students. Offered Fall.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$40

**BME 7720 MR Imaging of Neurovascular Disease Cr. 3**

Recent advances in MRI technology applied to human brain vascular diseases. Methods include: 3D anatomical imaging, diffusion tensor imaging, functional brain imaging, perfusion imaging, and susceptibility weighted imaging. Offered Every Other Fall.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** PYC 7320

**BME 7990 Directed Study Cr. 1-4**

Independent projects on subjects of interest in the field of biomedical engineering. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**BME 7995 Special Topics in Biomedical Engineering II Cr. 1-4**

Topics as announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BME 8070 Seminar in Biomedical Engineering Cr. 1**

Lectures on biomedical engineering and related fields by guest speakers, faculty, and students. M. S. and Ph.D. students are required to take one semester. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BME 8080 BME PhD Qualifying Exam Cr. 1**

Qualifying exam and procedures to write the exam. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering; enrollment limited to students in a Doctor of Philosophy degree.

**BME 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**BME 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**BME 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering; enrollment is limited to Graduate level students.

**BME 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BME 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering; enrollment is limited to Graduate level students.

**BME 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BME 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering; enrollment is limited to Graduate level students.

**BME 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** BME 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering; enrollment is limited to Graduate level students.

**BME 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Engineering; enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## BMS - Basic Medical Science

**BMS 6550 Medical Anatomy for Health Professionals Cr. 4**

Basics of human anatomy for BMS and selected graduate students. Offered Spring/Summer.

**Fees:** \$15



**BMS 7880 Special Topics/Projects Cr. 1-4**

Up to four credits in research, laboratory, discussion, or field work, in any combination; for students in Basic Medical Sciences or Medical Research program. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**BMS 7999 Essays in Basic Medical Science Cr. 3**

Methodologies in library research and critical evaluation of current biomedical literature. Written summary and report on a specific topic in current biomedical literature. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

## CB - Cancer Biology

**CB 7130 Clinical Aspects of Cancer Biology Cr. 1**

Cancer Biology Ph.D. students accompany clinicians during rounds in hospital and outpatient clinics, as well as attend clinical conferences, tumor boards and related sessions. Offered for S and U grades only. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**CB 7210 Fundamentals of Cancer Biology Cr. 3**

The lectures are organized into three thematic blocks including cancer development and pathology, mechanisms of cancer development and progression, and principles of cancer prevention and therapy. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CB 7220 Molecular Biology of Cancer Development Cr. 3**

This course will provide a detailed understanding of the molecular mechanisms leading to cancer with emphasis on conceptual foundations and current experimental approaches. The course will include lectures, student-led discussions, and critical reading of literature. Students are required to present and actively participate in discussions. Offered Every Other Fall.

**Prerequisite:** IBS 7015 with a minimum grade of C and CB 7210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CB 7240 Principles of Cancer Therapy Cr. 2**

Continuation of the principles of cancer therapy taught in CB 7210. Concepts relating to tumor biology and the biochemistry and pharmacology of both classic and targeted agents are covered. Offered Every Other Winter.

**Prerequisite:** IBS 7015 with a minimum grade of C and CB 7210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CB 7300 Special Topics in Cancer Biology Cr. 1-3**

This special topics course will provide students with the opportunity for in-depth study of emerging themes and technologies on basic, translational, epidemiologic and clinical topics related to cancer, as well as augment material from other courses in Cancer Biology. Offered Every Term.

**Prerequisite:** CB 7210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**CB 7410 Cancer Immunology and Immunotherapy Cr. 3**

The purpose of this course is to introduce students to fundamental concepts and methodologies in cancer immunology and immunotherapy as well cutting-edge developments in academia and industry in this rapidly progressing field. Upon the completion of the course, the students will become familiar with: how the immune system limits and eradicates cancer; how cancer cells evade immune recognition; how cancer immunity is influenced by host genetics and environmental factors; how cancer immunotherapies are currently performed and monitored in the clinical setting; what are the future developments expected in cancer immunotherapy; and how to critically review the basic and clinical literature in cancer immunology and immunotherapy. Offered Every Other Winter.

**Prerequisite:** IM 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CB 7430 Cancer Epidemiology Cr. 2**

Introduces concepts and methods used in cancer epidemiology research and focuses on the cancer burden in the United States and worldwide, as well as the major causes of cancer. Students will be required to review and provide critical appraisal of selected literature in innovative areas of cancer epidemiologic research. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CB 7460 Mechanisms of Neoplasia: Alterations to Cellular Signaling Cr. 3**

This course covers cellular regulatory signal-transduction networks that are often activated inappropriately in malignant cells and impact survival, apoptosis, adhesion, and cell cycle progression. Offered Every Other Fall.

**Prerequisite:** CB 7210 with a minimum grade of C and IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CB 7500 Introduction to Cancer Biostatistics Cr. 2**

This is an introductory masters-level course in biostatistics for students pursuing a master's degree in Cancer Biology. The main goal of this course is for the student to be introduced to basic statistical methods utilized in cancer research including experimental design, statistical hypothesis tests, linear regression, and survival analysis. The course will utilize Excel and the PSPP programming environment for instruction. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology; enrollment limited to students in a Master of Science degree.

**CB 7510 Journal Club/Seminar Cr. 1**

This journal club/seminar format course is required for master's students in the Cancer Biology Graduate Program. Classes will be split between cancer research-focused paper presentations/discussions and seminar presentations. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology; enrollment limited to students in a Master of Science degree.

**Repeatable for 2 Credits**

**CB 7600 Applied Cancer Biostatistics Cr. 2**

This course covers concepts and applications of statistical methods and data analysis related to cancer research. Students obtain hands-on exposure to statistical thinking, and data analysis and interpretation through interactive teaching modules. The course enables students to understand basic statistical principles in cancer biology literature, and provides guidance for planning experiments and analyzing data in their own research. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.



**CB 7700 Recent Developments in Cancer Biology Cr. 1**

This course is run as a journal club and is designed for students to develop proficiency in critically evaluating original cancer biology literature, to broaden knowledge of current cancer research, and to provide insight into different research strategies. Each student is expected to participate in class discussions. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**Repeatable for 6 Credits**

**CB 7710 Individual Studies in Cancer Biology Cr. 1-3**

Cancer Biology graduate students pursue experimental research under the guidance of selected faculty. This is the research rotation through which students select their Ph.D. dissertation mentor. Students are required to complete three rotations. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**Repeatable for 3 Credits**

**CB 7800 Rigor and Reproducibility in Cancer Biology Cr. 1**

This course will introduce students to basic principles of rigorous and reproducible Cancer Biology research. This includes experimental design and data interpretation, publishing, animal and human research, and other topics relevant to the conduct of research in Cancer Biology. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**CB 7890 Seminar in Cancer Biology Cr. 1**

This course provides Cancer Biology students with the opportunity to present their dissertation research to their peers. This class not only provides students with the opportunity to develop their oral presenting skills, but also gives the students a chance to critically evaluate their peers. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**Repeatable for 6 Credits**

**CB 7996 Research Cr. 1-15**

Directed study and pre-dissertation research with faculty in the program. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**Repeatable for 15 Credits**

**CB 7999 Master's Essay Cr. 1-4**

Review of relevant literature and research summary based on master's research in Cancer Biology. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**Repeatable for 4 Credits**

**CB 8910 Applied Cancer Omics and Data Analysis Cr. 1**

This course is designed to instruct students having a general background in molecular biology in the understanding and practical application of contemporary "omics" technologies within the context of cancer research. The course will emphasize the use of publicly available cancer omics datasets and associated bioinformatics tools for data mining. Students will develop skills by utilizing data repositories and analysis methods in a project geared towards their research interests. No coding or programming experience is required. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CB 8920 Principles of Translational and Clinical Cancer Research Cr. 1**

The goal of this course is for the students to understand the fundamentals of translational and clinical cancer research with emphasis on identifying clinically meaningful research goals and application of laboratory based research into clinical trials. The students will attend a series of lectures from clinical oncology faculty members. Students will work with their clinical mentors to develop translational research projects or correlative end points for a clinical trial concept. Students are expected to present a brief proposal of the project at the end of the course, which will be evaluated by the course director. Offered Fall.

**Prerequisite:** CB 7130 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**CB 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**Repeatable for 8 Credits**

**CB 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**CB 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CB 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**CB 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CB 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**CB 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CB 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**CB 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Cancer Biology.

**Fees:** \$416.08

**Repeatable for 0 Credits**

# CE - Civil Engineering

## **CE 2000 How Cities Work: An Introduction to Civil and Environmental Infrastructure Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry

Cities are built on the backbone of infrastructure, particularly civil and environmental infrastructure. These infrastructures provide essential services to residents. This course will make students aware of the tensions that arise out of the social, economic, and environmental demands on sustaining engineered infrastructure in the diverse, pluralistic social forums that are our cities. Students will learn how our engineered urban centers operate so they are better prepared for careers in governance and management, to perform social work with citizens who are disconnected from vital services, work as an engineer toward sustainable urban futures; serve as an informed public health or medical professional, among other endeavors that can benefit from an understanding of how cities strive to serve and provide services to residents. Offered Yearly.

## **CE 2410 Statics Cr. 3**

Basic concepts and principles of statics with applications to Newton's Laws of Motion to engineering problems. Forces, moments, equilibrium, couples, free body diagrams, trusses, frames, fluid statics, friction, area and mass moment of inertia. Offered Every Term.

**Prerequisites:** MAT 2020 with a minimum grade of C-, PHY 2175 with a minimum grade of C-, and BE 1500 with a minimum grade of C-  
**Equivalent:** ME 2410

## **CE 2420 Elementary Mechanics of Materials Cr. 3**

Elastic relationships between external forces acting on deformable bodies and the associated stresses and deformations; structural members subjected to axial load, torsion, and bending; column buckling; combined stresses; repeated loads; unsymmetrical bending. Offered Every Term.

**Prerequisites:** ME 2410 with a minimum grade of C- or CE 2410 with a minimum grade of C-

**Equivalent:** ME 2420

## **CE 3010 Introduction to CAD in Civil Engineering Cr. 3**

Principles of computer graphics and utilization of computers in the design process. Civil engineering applications of AutoCAD. Offered Every Other Year.

**Prerequisite:** MAT 2020 with a minimum grade of C- and BE 1200 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

## **CE 3070 Surveying Cr. 3**

Principles of plane surveying; measurement of horizontal and vertical distance, directions and angles, traverses, areas. Offered Intermittently.

**Prerequisite:** PHY 2185 with a minimum grade of C- or PHY 2180 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$20

## **CE 3250 Applied Fluid Mechanics Cr. 4**

Application of theoretical fluid mechanics to problems of special interest to civil engineers including pipe flow, open channel flow, forces on submerged bodies, and flow measurement. Laboratory component of course provides experimental verification of theories and computer visualization. Offered Fall.

**Prerequisite:** MAT 2030 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$15

## **CE 3450 Civil Engineering Materials Cr. 4**

Structure, composition and engineering properties of aggregates, cement concrete, asphalt, asphalt concrete, and other civil engineering materials. Mix design, testing, and quality control. Material Fee as indicated in the Schedule of Classes. Offered Winter.

**Prerequisites:** BE 2100 with a minimum grade of C- and CE 2420 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$35

## **CE 4020 Introduction to Construction Engineering and Management Cr. 3**

An introduction to the organization and management of construction projects. This course will cover the life cycle of a construction project including planning, design, procurement, construction, commissioning, and close-out phases. Also, the students will learn about fundamentals of cost estimating, scheduling, quality, safety and risk management, sustainability, and various applicable technology for construction projects. Offered Winter.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

## **CE 4210 Introduction to Environmental Engineering Cr. 3**

Introduction to environmental laws; reaction kinetics; principles of mass balances; plug-flow and completely stirred tank reactors; Stoke's Law; Streeter-Phelps oxygen sag curves; water chemistry; hydrologic cycle; population growth models; elements of soil waste management and air pollution. Offered Winter.

**Prerequisite:** CE 3250 with a minimum grade of C-

**Corequisite:** CE 4230

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$10

**CE 4230 Environmental Engineering Laboratory Cr. 1**

This laboratory course includes multiple experiments that demonstrate fundamental environmental engineering concepts and principles. The course involves laboratory and field work techniques commonly used in the field of environmental engineering. Through this course, students will 1) develop safe and effective laboratory and field work techniques, 2) understand how to apply hypothesis development and testing, along with experimental and engineering design, data analysis and interpretation, and 3) build a foundation of good engineering understanding that they can apply in their future academic and industrial career. Offered Winter.

**Prerequisites:** CE 4210 with a minimum grade of C- (may be taken concurrently)

**CE 4240 Environmental Engineering Design Cr. 3**

Design of engineered environmental systems, including drinking water distribution systems, sanitary and storm water sewer systems, and municipal waste disposal sites. Offered Fall.

**Prerequisite:** CE 3250 with a minimum grade of C- and CE 4210 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CE 4400 Structural Analysis Cr. 4**

Basic concepts of structural analysis; reactions, forces, and stresses in trusses and beams; influence lines; elastic deflections; introduction to indeterminate structures; computer applications. Offered Fall.

**Prerequisites:** CE 2410 with a minimum grade of C- and CE 2420 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CE 4410 Steel Design Cr. 3**

First course in design of steel structures. Introduction to the concepts, requirements, and fundamental skills for steel building structural design. Offered Winter.

**Prerequisites:** CE 4400 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CE 4420 Reinforced Concrete Design Cr. 3**

First course in design of concrete structures. Design and analysis of reinforced concrete beams, columns, and other structural members; ACI code requirements, cost concerns, safety, industry practices; introduction to prestressed concrete. Offered Fall.

**Prerequisite:** CE 4400 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CE 4510 Introduction to Geotechnical Engineering Cr. 4**

Composition, engineering properties and behavior of soils. Principles of soil mechanics. Experimental determination of engineering classification, strength and deformation characteristics of natural and artificially placed soils. Offered Fall.

**Prerequisites:** CE 3250 with a minimum grade of C- (may be taken concurrently) and CE 3450 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$30

**CE 4600 Transportation Engineering Cr. 3**

Transportation functions; transportation systems including highways, railways and airways. Techniques of transportation systems analysis including optimization, network flows and queueing theory. Offered Winter.

**Prerequisite:** BE 3220 with a minimum grade of C- or BE 2100 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CE 4610 Highway Design Cr. 3**

This course covers the standards recommended by: American Association of State Highway and Transportation Officials (AASHTO); FHWA; and MDOT for designing and evaluation of highways. Its objective is to introduce the students to the concepts, requirements, and fundamental skills for highway design and evaluation. The primary goal of geometric design is to provide for the safety and comfort of road users with due regard to social, economic and environmental constraints. Although there are suggested design standards and controls that must be followed to meet design goals, their application is determined on a case-by-case basis. The objective of this course is to illustrate the practical application of scientific knowledge to the planning and designing of roadway elements. The course uses up-to-date software design tools in accomplishing these goals. Upon completion of the course, the student is expected to be able to design and evaluate highways per AASHTO, MDOT and FHWA standards. Offered Fall.

**Prerequisite:** CE 4600 with a minimum grade of C-

**CE 4640 Transportation Systems Design and Operation Cr. 3**

Provides an overview of various system components of transportation, including the driver, vehicle and roadway. The subject matter will be covered at an intermediate level, appropriate for CEE students already familiar with the basic concepts of transportation engineering who wish to expand their knowledge. There will be a particular emphasis on transportation safety and multimodal roadway operations, as are typical priorities in an urban or suburban setting. Topics include: traffic flow design elements including volume, density and speed; intersection design elements including delay, capacity and crash countermeasures and terminal design elements including inflow, outflow and circulation. Offered Fall.

**Prerequisite:** CE 4600 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CE 4850 Engineering Economy Cr. 3**

Economic analysis of engineering projects. Selection of appropriate financial parameters (e.g., interest rates) and methods of analysis for depreciation, tax considerations, and use of accounting data for comparison among investment options. Offered Fall.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.  
**Equivalent:** IE 4850

**CE 4985 Preparation for Senior Design Capstone Cr. 1**

Provides students with a comprehensive understanding and practical application of civil engineering principles through their participation in the annual ASCE Student Symposium Concrete Canoe and Steel Bridge competitions. Provides students the opportunity to apply fundamental tools, practical skills, and principles of civil engineering towards the evaluation of options, strategic planning for the completion of designated projects. Application of computer-aided design and engineering tools will be utilized for analysis and design. Through a combination of lectures, workshops, and team-based activities, students will gain hands-on experience and develop both technical & soft skills necessary to design and compete effectively in these competitions. The focus will be on exploring diverse solutions, implementing building codes, and integrating engineering standards within the context of concrete canoe and steel bridge applications. Contacts with industry will be facilitated. Offered Fall.

**Prerequisites:** CE 3250 with a minimum grade of C-, CE 4020 with a minimum grade of C-, CE 4400 with a minimum grade of C-, and CE 4600 with a minimum grade of C-

**CE 4990 Directed Study Cr. 1-4**

Supervised study and instruction in civil engineering. Written report required. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Repeatable for 6 Credits**

**CE 4995 Senior Design Project Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Capstone design experience through civil engineering projects. Offered Winter.

**Prerequisite:** CE 4985 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CE 5220 Environmental Chemistry Cr. 3**

Fundamentals of aqueous chemistry for environmental engineers and scientists. Basic chemistry, equilibria, kinetics and thermodynamics; includes acid/base reactions, precipitation/dissolution, oxidation/reduction reactions and partitioning. Offered Every Other Year.

**Fees:** \$5

**CE 5230 Water Supply and Wastewater Engineering Cr. 3**

Analysis and design of water supply and wastewater treatment systems; water distribution systems; treatment of municipal water supplies, including sedimentation, softening, filtration and disinfection; design of sanitary and storm sewers; primary, secondary and tertiary treatment plant design; sludge handling. Offered Yearly.

**Prerequisite:** CE 4210 with a minimum grade of C-

**Fees:** \$5

**CE 5240 Air Pollution Engineering Cr. 3**

Designed to introduce students to the fields of air pollution and air quality, this course will provide an overview of the U.S. regulation of air pollution and explain the fundamental principles of the physical and chemical processes of air pollutants associated with natural and anthropogenic emission sources. In particular, we will focus on air pollutants that contribute to the formation of acid rain, smog and haze, as well as the gas- and particle-phase tropospheric chemistry. Engineering methods to control and mitigate air pollution will be also covered. Offered Yearly.

**CE 5350 Introduction to Structural Dynamics Cr. 4**

Dynamic properties of structures, Modeling of dynamic loads. Structural response to dynamic loading. Structural design requirements for dynamic loads. Fundamental techniques of dynamic system analysis. Offered Winter.

**Prerequisite:** ME 3400 with a minimum grade of C- and CE 4400 with a minimum grade of C-

**CE 5370 Finite Element Analysis Fundamentals Cr. 3**

Matrix structural analysis, discretization of continuous structural systems, stress analysis. Commercial finite element software preprocessing for developing finite element models; post-processing for evaluating analysis results. Offered Fall.

**Prerequisites:** CE 4400 with a minimum grade of C-

**CE 5390 Design of Prestressed Concrete Structures Cr. 3**

Focuses on the design of prestressed structures. The principle and methods of prestressing are discussed including approaches for computing prestress losses. The course deals with the estimation of capacity of various structural members such as beams and columns and their response to various structural actions such as flexure, vertical shear, horizontal shear, and combined axial and flexure loads. Performance at service is discussed in terms of stresses, deflections and crack control. Offered Yearly.

**Prerequisite:** CE 4420 with a minimum grade of C-

**CE 5410 Energy, Emissions, Environment (E3) Design Cr. 3**

Provides students the tools to uncover the relation between energy consumption and energy generation and optimize processes to take most advantage of low emitting energy options. Exposes students to design tools and methodologies from a diverse group of sources including US EPA, DOE, EIA, and the latest in emerging research. Offered Fall.

**Equivalent:** AET 5410, STE 5410

**CE 5510 Geotechnical Engineering I Cr. 4**

Site investigation, site improvement, bearing capacity and settlement of shallow foundations, axial capacity and lateral deflection of deep foundations, design of conventional earth retaining walls, and basics of slope stability analyses. Offered Fall.

**Prerequisites:** CE 4510 with a minimum grade of C-

**CE 5520 Geotechnical Engineering II Cr. 3**

Lateral earth pressure theories, design of conventional earth-retaining walls and of reinforced earth walls, anchored sheet-pile walls and cofferdams, fundamentals of soft-ground tunneling, two- and three-dimensional slope stability analyses, and static design of earth dams. Offered Every Other Year.

**Prerequisites:** CE 4510 with a minimum grade of C-



**CE 5610 Advanced Highway Design Cr. 3**

This course covers the standards recommended by: American Association of State Highway and Transportation Officials (AASHTO); FHWA; and MDOT for designing and evaluation of highways. Its objective is to introduce the students to the concepts, requirements, and fundamental skills for highway design and evaluation. The primary goal of geometric design is to provide for the safety and comfort of road users with due regard to social, economic and environmental constraints. Although there are suggested design standards and controls that must be followed to meet design goals, their application is determined on a case-by-case basis. The objective of this course is to illustrate the practical application of scientific knowledge to the planning and designing of roadway elements. The course uses up-to-date software design tools in accomplishing these goals. Upon completion of the course, the student is expected to be able to design and evaluate highways per AASHTO, MDOT and FHWA standards. Offered Fall.

**Prerequisites:** CE 4640 with a minimum grade of C-

**CE 5640 Advanced Transportation Systems Design and Operation Cr. 3**

Provides an overview of various system components of transportation, including the driver, vehicle and roadway. The subject matter will be covered at an intermediate level, appropriate for CEE students already familiar with the basic concepts of transportation engineering who wish to expand their knowledge, and for non-CEE students specifically interested in applications of transportation engineering theory. There will be a particular emphasis on transportation safety and multimodal roadway operations, as are typical priorities in an urban or suburban setting. Traffic flow design elements including volume, density and speed; intersection design elements including delay, capacity and crash countermeasures and terminal design elements including inflow, outflow and circulation. Offered Fall.

**CE 5810 Legal Aspects of Engineering and Construction Cr. 3**

Business of contracting, construction, liabilities of owner, architect, engineer and contractor. Rights in land, boundaries and foundations. Case studies. Offered Fall.

**Fees:** \$5

**CE 5830 Business of Engineering Cr. 3**

Defining the engineering company, creating the organization, support services, business development, project management, scheduling, budgeting and profitability, operations, financial management and risk management. Offered Every Term.

**Prerequisites:** CE 4850 with a minimum grade of C-

**CE 5995 Special Topics in Civil Engineering I Cr. 1-3**

Topics to be announced in Schedule of Classes. Offered Intermittently.  
**Repeatable for 12 Credits**

**CE 6010 Advanced Construction Engineering and Management Cr. 3**

This course will cover the life cycle of a construction project including planning, design, procurement, construction, commissioning, and close-out phases. Also, the students will learn about fundamentals of cost estimating, scheduling, quality, safety and risk management, sustainability, and various applicable technology for construction projects. Offered Winter.

**CE 6050 Construction Cost Estimating Cr. 3**

Estimating construction costs of engineering projects including materials, man-hours, equipment and overhead. Emphasis on construction equipment, including productivity and planning. Bidding and bid documents. Offered Every Other Year.

**Prerequisites:** CE 4850 with a minimum grade of C-

**CE 6060 Construction Techniques and Methods Cr. 3**

Construction techniques and methods for excavation, foundations, concrete, wood, steel, masonry, heavy construction, wastewater treatment plants, highways and roads, high rise structures, bridges, and tunneling projects. Offered Every Other Year.

**Prerequisites:** CE 4450 with a minimum grade of C-

**CE 6130 Open Channel Hydraulics Cr. 3**

Theoretical development of equations governing flow in open channels. Application to real-world engineering problems involving water surface profiles, flood studies, and river. Offered Winter.

**Prerequisites:** CE 3250 with a minimum grade of C-

**CE 6150 Hydrologic Analysis and Design Cr. 3**

Principles of surface water hydrology and their application for evaluation of floods and the design of surface runoff control system; watershed characteristics; design storms and SCS methods; unit hydrographs; hydrologic models; application of computer methods. Offered Every Other Year.

**Prerequisites:** CE 4210 with a minimum grade of C-

**CE 6160 Principles of Atmospheric Chemistry and Applications Cr. 3**

Provides the student with an overview of photochemical reactions that directly impact atmospheric composition and thus pertinent to the management of air quality. Focuses on atmospheric radicals, tropospheric ozone and mechanisms of particulate matter formation; the impact of these constituents associated with air pollutions on air quality and global climate change. Students will be introduced to modeling atmospheric chemistry using simple box models as well as state-of-the-science 3-dimensional global chemical transport models. Offered Yearly.

**CE 6170 River Assessment and Restoration I Cr. 3**

Students will learn field methods to assess stability, condition of rivers and contributing watersheds. Students will learn basic surveying techniques, apply these to the collection, analysis of cross-sectional data and longitudinal profiles. Other field methods include: Wolman pebble count, measurement of plan-form geometry, identification of key geomorphic features (e.g., bankfull elevation, abandoned floodplains, mid-channel and transverse features). Field measurements will be made to calculate Bank Erosion Hazard Index (BEHI), Near-Bank Stress Index. Students will learn how to monitor a river for bank erosion (e.g., bank pins), riverbed aggradation/degradation (e.g., scour chains). Students will learn stream classification, sediment budgeting, methods to quantify sediment yield and transport, and how to analyze data, and identify trends in river hydrology and sediment supply. Offered Every Other Spr/Sum.

**CE 6190 Groundwater Cr. 3**

Historical background, aquifers and aquitards, saturated and unsaturated flow, sources of ground water contamination, artificial recharge of ground water, development of ground water basins and efficient use of ground water resources. Offered Yearly.

**Prerequisites:** CE 3250 with a minimum grade of C-

**CE 6270 Sustainability Assessment and Management Cr. 3**

Sustainability assessment and management for engineering design and development; theoretical, regulatory, and practical implications; Detroit and global applications. Offered Yearly.

**Equivalent:** STE 6270

**CE 6330 Advanced Structural Analysis Cr. 3**

Effect of axial loads on stiffness of flexural members. Buckling of trusses and rigid frames. Matrix method of analysis. Complex structures. Computer applications. Offered Fall.

**Prerequisites:** CE 4410 with a minimum grade of C-



**CE 6340 Bridge Design and Evaluation Cr. 3**

Concepts, procedures, methods of design and condition evaluation for modern highway bridges, according to current specifications. Entire system is covered, including superstructure, substructure, and their connections. Offered Every Other Year.

**Prerequisites:** CE 4420 with a minimum grade of C-

**CE 6370 Advanced Reinforced Concrete Design Cr. 3**

Theory and design of two-way slabs, footings, retaining walls, shear walls, and composite beams using ultimate strength design. Precast and prestressed concrete fundamentals. Offered Yearly.

**Prerequisites:** CE 4420 with a minimum grade of C-

**CE 6410 Advanced Steel Design Cr. 3**

Advanced topics of structural steel design: thin walled rolled and built-up members, beam columns, lateral torsional buckling, steel fatigue design, connection details. Steel design project. Offered Every Other Year.

**Prerequisites:** CE 4420 with a minimum grade of C-

**CE 6580 Geoenvironmental Engineering I Cr. 4**

Properties and test methods for natural and synthetic materials used in landfills; analysis of chemical interactions, flow mechanisms, stability and settlement for the design of landfill components. Offered Yearly.

**Prerequisites:** CE 4510 with a minimum grade of C-

**CE 6660 Pavement Asset Management Cr. 3**

Principles and practices of pavement management at the network and project level: serviceability, pavement design models, economic analysis, and priority programming. Offered Yearly.

**Prerequisites:** CE 4610 with a minimum grade of C- or CE 4640 with a minimum grade of C-

**CE 6880 Building Information Modeling (BIM) Cr. 3**

Lectures, hands-on demonstrations and lab exercises to familiarize students with concepts and tools in Revit Architecture 2010 software; how software integrates 3D and 2D modeling. Includes an overview of the Building Information Modeling (BIM) process; integration of designs from different disciplines (architectural, structural and MEP) in a BIM model; and use of BIM tools (including Revit and Navisworks) to create 2D, 3D, 4D (schedule) and 5D (cost) models for project control purposes, as well as clash detections. Offered Every Other Year.

**CE 6910 Pharmaceutical Waste: Environmental Impact and Management Cr. 2-3**

Course designed for advanced professional and graduate students with sufficient chemistry and/or biological sciences background who are interested in the environmental impact, management, and regulation of waste pharmaceuticals as emerging issues. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students.

**Equivalent:** PSC 6910

**CE 6991 Internship in Industry Cr. 1-4**

Written report describing internship experience. Offered Every Term.

**Repeatable for 4 Credits**

**CE 7020 Construction Safety Cr. 3**

Safety problems in the construction industry and their technical and managerial solutions, construction accident and failure analysis and control. Safety program design and implementation with TQM integration. Offered Yearly.

**Prerequisite:** CE 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7070 Risk and Reliability in Civil Engineering Cr. 3**

Uncertainty in civil engineering practice (e.g., loads, traffic, water demand, construction quality). Reliability theory based on probabilistic and statistical methods. Reliability-based engineering design and decision making. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7080 Civil Engineering Research Methods Cr. 3**

Methods of data collecting and statistical analysis in context of civil engineering. Applications of advanced statistical analysis techniques, theory, discussion of methodological limitations. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**CE 7090 Statistical and Econometric Methods in Civil Engineering II Cr. 3**

The purpose of this course is to provide students with advanced training in the application of various statistical/econometric analysis techniques for addressing civil engineering-related problems. The methods considered in this class are an extension of the techniques taught in CE 7080. The course will present a number of model-estimation methods that are used in the areas of planning, design, operations and management of transportation systems. The course will emphasize model estimation and application, but underlying theory and limitations will be discussed to ensure that the methods are properly applied and understood. After completing this course, students will have exposure to an assortment of statistical modeling tools and additional insight to transportation data sources, their limitations, and the analysis of such data. It is important to note that the methods presented go well beyond the techniques typically covered in statistics courses. Offered Intermittently.

**Prerequisite:** CE 7080 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7160 Advanced Principles of Atmospheric Chemistry and Applications Cr. 3**

This course will provide students with an overview of photochemical reactions that directly impact atmospheric composition and thus pertinent to the management of air quality. In particular, we will focus on atmospheric radicals, tropospheric ozone and mechanisms of particulate matter formation; the impact of these constituents associated with air pollutions on air quality and global climate change. Students will be introduced to modelling atmospheric chemistry using simple box models as well as state-of-the-science 3-dimensional global chemical transport models. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7170 Advanced River Assessment and Restoration I Cr. 3**

Students will learn field engineering methods to assess the stability and condition of rivers and contributing watersheds. Students will learn basic surveying techniques, apply them to the collection and analyze cross-sectional and longitudinal profile data. Other methods include: Wolman pebble count, measurement of plan-form geometry, identification of key geomorphic features. Field measurements will be made to calculate the Bank Erosion Hazard Index (BEHI) and Near-Bank Stress Index among other parameters. Students will learn how to monitor riverbank erosion and riverbed aggradation/degradation via scour chains. Students will learn stream classification, the importance of sediment budget, methods to quantify sediment yield and transport, and how to analyze data to assess trends in hydrology and sediment supply. Offered Every Other Spr/Sum.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7180 Advanced River Assessment & Restoration II - Field Methods in Fluvial Geomorphology Cr. 3**

Students will learn advanced field methods to assess the stability & condition of a river. Rivers are composed of water & sediment, both flowing under the influence of gravity. The proportions of water & sediment that make up the stream will dictate the stable form or the extent to which it is unstable. As such, one must be able to accurately quantify the water & sediment delivered to and transported through a stream. A considerable portion of this class will be spent in the field where students will learn techniques for measuring stream-flow & sediment transport. Students will learn several methods for calculating sediment transport & sediment yield rates. Students will learn field methods to quantitatively characterize the bed of a stream & the movement of that bed. Additionally, the quantification of sediment sinks such as deposition on the floodplain & in ponds/reservoirs, will be performed. Students will learn how the hydrology & sediment supplies to the Great Lakes have changed. Offered Every Other Spr/Sum.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7190 Groundwater Modeling Cr. 3**

Analytical and numerical models of groundwater hydraulics and contaminant transport. Application of theoretical material developed in CE 6190. Case studies of model applications to real field problems. Offered Yearly.

**Prerequisite:** CE 6190 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7220 Industrial Waste Treatment Cr. 4**

A study of the sources of specific industrial waste waters and their treatability by physical, chemical and biological processes, including the industries' obligation in the prevention of stream pollution. Problems and solutions involved in combined treatment of industrial and domestic waste waters. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**CE 7240 Advanced Air Pollution Engineering Cr. 3**

Designed to introduce students to the fields of air pollution and air quality, this course will provide an overview of the U.S. regulation of air pollution and explain the fundamental principles of the physical and chemical processes of air pollutants associated with the natural and anthropogenic emission sources. In particular, we will focus on air pollutants that contribute to the formation of acid rain, smog and haze, as well as the gas- and particle-phase tropospheric chemistry. Engineering methods to control and mitigate air pollution will be also covered. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7270 Big Data Applications in Environmental Engineering Cr. 3**

This graduate-level course will focus on numerical methods and computational techniques required to run state-of-the-art 3-dimensional (3D) chemical transport models and process big data in order to address problems in environmental engineering, with a focus on air pollution and air quality. Students will have hands-on experience running GEOS-Chem models over Grid High Performance Computing at Wayne State University and employing programming skills to analyze the often dense model output datasets, and then employing strategies to visualize and interpret these data. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7280 Applied Environmental Microbiology Cr. 3**

Provides knowledge of microbiology, roles and relations of microorganisms to the environment. Topics include practical applications of environmental microbiology to environmental issues including water treatment, biodegradation and bioremediation of environmental pollutants, production of alternative fuels, and emerging environmental concern. Special consideration will be given to water treatment and microbe-mediated cycling of organic materials (i.e. pollutants) in a variety of natural and engineered environment. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**CE 7300 Advanced Structural Mechanics Cr. 3**

Theory of bending and torsion of bars, beams on elastic foundations. Introduction to theory of thin plates. Linear elastic fracture mechanics, application to brittle solids. Offered Fall.

**Prerequisite:** CE 6330 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7311 Sustainability of Urban Environmental Systems Cr. 2**

Students will be introduced to topics in urban sustainability from multiple disciplinary perspectives such as: ecology, anthropology, communication, engineering, economics and urban planning. Questions in fostering a more sustainable urbanism will be introduced and evaluated. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 7310

**CE 7370 Advanced Finite Element Analysis Cr. 3**

Advanced topics in finite element analysis; stability analysis and vibrations of structural systems; modeling of complex structures, dynamic analysis, and nonlinear structural problems; and computer applications. Offered Every Other Year.

**Prerequisite:** CE 5370 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7380 Advanced Topics in Steel Design Cr. 3**

Focuses on steel plasticity, plastic mechanism analysis, and the application of these concepts to design for strength and stability of steel structures. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7385 Advanced Topics in Reinforced Concrete Design Cr. 3**

Focuses on reinforced concrete plasticity, plastic mechanism analysis, and the application of these concepts to design for strength of reinforced concrete structures. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7395 Advanced Design of Prestressed Concrete Structures Cr. 3**

Focuses on the design of prestressed structures. The principle and methods of prestressing are discussed including approaches for computing prestress losses. Deals with the estimation of capacity of various structural members such as beams and columns and their response to various structural actions such as flexure, vertical shear, horizontal shear, and combined axial and flexure loads. Performance at service is discussed in terms of stresses, deflections and crack control. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7460 Advanced Composite Materials for Civil Infrastructure Cr. 3**

Infrastructure problems. Advanced fiber reinforced plastics, including applications in primary/secondary and marine structures, and in rehabilitation. High performance fiber reinforced concrete. Controlled composite properties via composite design. Review of composite analysis and failure criteria based on micromechanics and laminate theory. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7500 Engineering Properties of Soils Cr. 4**

Overview of experimental methods in geotechnical engineering, instrumentation and data acquisition methods, statistical analysis of test data, tests and theories for settlement predictions, tests and theories for hydraulic conductivity determination, tests and theories for static and cyclic stress-strain-volume change behavior of soils. Offered Every Other Year.

**Prerequisite:** CE 5510 with a minimum grade of C and CE 5520 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7580 Environmental Remediation Cr. 3**

Site assessment; soil and groundwater investigation for remediation; application of remediation technologies; legislation related to remediation. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7600 Highway Safety and Risk Management Cr. 3**

The focus of this course is on developing knowledge, skills, and abilities for planning, managing, and operating safe roadways for all users and modes of travel. It includes analysis of roadway design alternatives, statistical analysis of roadway safety issues, and crash countermeasure selection and evaluation. Students should have prior knowledge of the roadway geometric design process, traffic flow fundamentals (i.e., volume, density, speed, etc.), traffic control devices, and basic statistics (linear regression, t-tests, p-values, etc.). Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7620 Traffic Engineering Control and Operation Cr. 3**

Traffic flow theories, macroscopic and microscopic models of traffic control, statistical analysis; design and application of intelligent transportation systems on traffic flow characteristics; evaluation. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7630 Urban Transportation Planning Cr. 3**

This course provides an in-depth view of transportation planning and the analytical and statistical tools needed to understand different planning principles and the relationship between transportation and land use, travel demand forecasting, demand versus supply characteristics, and the development and evaluation of alternative systems. Additional topics will include benefit-cost analysis, transportation equity analysis, and transit accessibility measurement. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7670 Advanced Traffic Signal Systems Cr. 3**

Analysis and design of traffic signal systems. Hardware, communication and detection systems associated with microcomputer-based signal systems. Coordinated signal systems. Offered Every Other Year.

**Prerequisite:** CE 7620 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7810 Advanced Legal Aspects of Engineering and Construction Cr. 3**

Examines the legal structure of the architecture, engineering, and construction (AEC) industry from the perspective of the working professional. Topics covered include: fundamental principles of law; components of a contract; industry standard agreements; project delivery methods; liabilities of owner, architect, engineer, contractor, and subcontractors/suppliers; torts, negligence, and claims; delays and unforeseen conditions; insurance and indemnification; intellectual property; liens and bonds; dispute resolution basics; rights in land, boundaries, and foundations. Case studies will be used, where appropriate, to illustrate keys concepts. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7830 Construction Planning and Scheduling Cr. 3**

Planning and scheduling of construction projects, project networks and critical path methods, resource leveling, use of Primavera software.

Offered Yearly.

**Prerequisite:** CE 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7840 Facilities Management Cr. 3**

Buildings and grounds operations and maintenance, planning design and construction, facilities economics and financing, real estate administration, environmental health and safety, health issues. Offered Winter.

**Prerequisite:** CE 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7850 Construction Contract Administration Cr. 3**

Project documentation; project setup and contract directory development; adding new contracts; purchase orders; recording materials deliveries; producing daily reports; preparing minutes of meetings; log submittals and handling correspondence; tracking contracts and costs, setup and preparing progress payment requisitions, managing claims and change orders. Offered Every Other Year.

**Prerequisite:** CE 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7860 Construction Accounting and Financial Management Cr. 3**

Construction financial management, construction accounting systems, analysis of financial statements, monitoring and controlling construction costs, managing overhead costs, markup, profit center analysis, cash flows for construction projects, financing, making financial decisions. Offered Every Other Year.

**Prerequisite:** CE 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7890 Integrated Construction Project Management Cr. 3**

Construction project management framework, construction project integration, project scope management, time management, cost management, quality management, procurement management, risk management, communication management. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 7990 Directed Study Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**CE 7995 Special Topics in Civil Engineering II Cr. 1-3**

A consideration of special subject matter in civil engineering. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CE 7996 Research Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**CE 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**CE 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CE 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CE 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CE 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CE 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CE 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## CED - Counselor Education

**CED 5090 Family Counseling and Substance Use Cr. 3**

Conceptual and clinical foundations for counseling family systems in which one more members has a substance use disorder or addiction.

Offered Intermittently.

**Prerequisites:** CED 5030

**CED 6005 Professional Counseling: Orientation Cr. 3**

Introduction to the counseling profession including history, philosophy, training, roles, functions, responsibilities, advocacy, organizations, laws, ethical codes and decision making models, licensure, credentialing, technology, and helping relationships. This course also orients students to Wayne State's Counselor Education (CED) Master's Degree concentrations. Offered Every Term.

**CED 6015 Diversity, Multicultural Competence, and Social Justice Advocacy for Human Service Professionals Cr. 3**

Theories and models for conceptualizing and counseling diverse clients including identity development, social justice, and advocacy. Awareness of the impact of cultural context on experiences and worldviews. Offered Every Term.

**Corequisite:** CED 6005

**CED 6025 Counseling Theories, Philosophies, and Techniques Cr. 3**

Individual and systemic theories, underlying philosophies, and associated techniques that counselors use to conceptualize and counsel clients. This course also introduces students to research-informed counseling practice. Offered Every Term.

**CED 6045 Professional Counseling Laws and Ethics Cr. 3**

Overview of legal and ethical counseling practice including Michigan Mental Health Code, professional ethical codes, and ethical decision-making models. Offered Every Term.

**Prerequisite:** CED 6015 with a minimum grade of B and CED 6025 with a minimum grade of B

**CED 6055 Testing and Assessment for Counselors Cr. 3**

Overview of assessing counseling clients including intake, harm, diagnostic, and other assessments. Offered Every Term.

**Prerequisite:** CED 6015 with a minimum grade of B and CED 6025 with a minimum grade of B and EDP 7370 with a minimum grade of B and EDP 7410 with a minimum grade of B

**Fees:** \$82

**CED 6065 Career Development and Employment Strategies Cr. 3**

Overview of career counseling processes including assessing and conceptualizing career development and decision-making in clinical, school, and rehabilitation contexts, accessing and interpreting labor market data, supporting job placement, and ethical and cultural considerations. Offered Every Term.

**Prerequisite:** CED 6045 with a minimum grade of B

**Fees:** \$30

**CED 6075 Trauma: Conceptualization and Treatment Planning Cr. 3**

Impact of trauma on adjustment and coping including definitions and constructs of trauma and ways of conceptualizing trauma and crisis. Students are introduced to skills and techniques utilized in trauma/crisis intervention. Offered Every Term.

**Prerequisite:** CED 6045 with a minimum grade of B and CED 6055 with a minimum grade of B

**CED 6085 Sexuality Cr. 3**

Counseling clients with sexual concerns, diverse sexual orientations, and diverse gender identities. Offered Every Term.

**Prerequisite:** CED 6045 with a minimum grade of B and CED 6055 with a minimum grade of B

**CED 6095 Introduction to Counseling Groups Cr. 2**

Overview of group counseling including formation, theories, process, development, leadership, and ethical and cultural considerations. Offered Every Term.

**Prerequisite:** CED 6065 with a minimum grade of B and CED 6075 with a minimum grade of B

**CED 6096 Group Counseling Participation Cr. 1**

Participate as a group member and transfer learning from the Introduction to Counseling Groups course by coleading a group. Offered Every Term.

**Corequisite:** CED 6095

**CED 6105 Individual and Systemic Approaches to Treating Addictions Cr. 3**

Assessing, diagnosing, conceptualizing, and treating clients who have addictions. Offered Every Term.

**Prerequisite:** CED 6095 with a minimum grade of B

**CED 6700 The Role of the Teacher in Guidance Cr. 2**

Introduction to guidance principles, techniques and roles, with stress on classroom application. Experiential laboratory sessions required to sensitize educators to the basic ideas and skills involved in being a helper. Primarily for school personnel other than counselors. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**CED 6710 Professional Seminar: Contemporary Issues Cr. 1-6**

Principles, procedures and methods specific to a critical contemporary issue, such as: child abuse, sexual abuse, bereavement, stress management, infectious diseases, self-esteem, self-efficacy, conflict management, and trauma. Offered Every Term.

**Repeatable for 6 Credits**



**CED 6720 Workshop in Counseling Cr. 2-4**

For counselors, teachers, and pupil personnel workers. Consideration of counseling issues in school, agency and community settings. Counseling, consultation, and coordination dimensions of counseling in substance abuse, family groups, and human sexuality issues. Offered Every Term.

**Repeatable for 18 Credits**

**CED 7005 Counseling Skills Cr. 3**

Students engage in supervised counseling role plays in which they demonstrate microskills and other foundational counseling skills including interviewing, relationship building, and case conceptualization. Offered Every Term.

**Prerequisite:** CED 6095 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 7015 Counseling Practicum Cr. 4**

Supervised experience during which students apply learning from previous courses to build relationships, assess, diagnose, conceptualize, and treat clients with diverse presenting concerns. Students are encouraged to develop a personalized, reflective approach to counseling. Offered Every Term.

**Prerequisite:** CED 7005 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**CED 7020 Counseling Internship Cr. 1-12**

Supervised counseling internship in settings that are congruent with students' concentrations. Students function in the professional role to apply theories and skills to clients. Offered Every Term.

**Prerequisite:** CED 7015 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CED 7105 Introduction to School Counseling, Consulting, and Collaboration Cr. 3**

Principles and practices of counseling, consulting, and collaboration in the P-12 school setting. Focus includes history and development of the School Counseling profession, professional roles and identity, individual and group approaches that facilitate student development and adjustment in the areas of academic, career, and social/behavioral aspects, staff, parental, and community resources and referral procedures, models of school counseling programs, program development, operation, assessment, and evaluation. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a concentration in School Counseling; enrollment is limited to Graduate level students.

**CED 7115 Advanced School Counseling Cr. 3**

Advanced principles and practices of counseling, consulting, and collaboration in the P-12 school setting including holistic approaches to facilitating student growth, development, and self-awareness as well as advanced ethical decision-making. Offered Every Term.

**Prerequisite:** CED 7105 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a concentration in School Counseling; enrollment is limited to Graduate level students.

**CED 7125 School Counseling: Postsecondary Planning and College Counseling Cr. 3**

Explores the role of the School Counselor in relation to postsecondary planning and college counseling. The Eight Components of College and Career Readiness approach will be used to educate school counselors to prepare and inspire students for post-secondary and college success and opportunity. Offered Every Term.

**Prerequisite:** CED 7105 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a concentration in School Counseling; enrollment is limited to Graduate level students.

**CED 7205 Foundations of Rehabilitation Counseling Cr. 3**

Introduction to clinical rehabilitation counseling, including history, values, philosophy, professional organizations, and professional roles. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 7215 Medical Aspects of Disability Cr. 3**

Medical characteristics of disabling conditions including medical terminology and etiologies, symptoms, prognoses, and treatment. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 7225 Psychosocial Aspects of Disability Cr. 3**

Psychological, social, and cultural aspects that impact diverse clients with disabling conditions. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 7235 Rehabilitation Counseling Professional Roles Cr. 3**

Explores the roles, including case management, that professional counselors play within rehabilitation counseling settings. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 7305 Clinical Counseling Roles: Consultation, Collaboration, and Coordination Cr. 3**

Consultation theory and processes in human service agencies and post-secondary educational institutions. Roles and functions of counselors in program and proposal development, conflict management, organizational administration and evaluation of services, public relations, and community referral processes. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 8000 Seminar in Group Counseling Cr. 3**

Students counsel groups which they have established. Tape and/or process recordings of counseling sessions analyzed to develop a theory and method of group counseling, group leadership, and techniques in the counseling of individuals in groups. Offered Every Other Year.

**Prerequisite:** CED 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 8020 Advanced Practicum Cr. 2-8**

Supervised practice counseling in the counseling laboratory. Counseling competence evaluated. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 8030 Advanced Consultation Theory and Methods Cr. 3**

Advanced consultation theory and methods in agencies and educational institutions. Roles and functions of counselor educators and supervisors in program and proposal development; organization, administration, and evaluation of services; conflict management; third party intervention; legal and ethical issues; public relations. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 8040 Advanced Counseling Theory and Method Cr. 3**

Theories of personality and learning applied to case diagnosis and projected remediation. Offered Every Other Year.

**Prerequisite:** CED 6080 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CED 8080 Advanced Career Development and Counseling Cr. 2-4**

For advanced students in guidance and counseling and related areas. Current trends and changes in career guidance and career education; their implications for guidance and counseling programs. Consideration of related topics. Offered Every Other Year.

**Prerequisite:** CED 7080 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**



**CED 9020 Internship in Counseling/Counselor Education Cr. 1-6**

Purposes, objectives, materials, techniques and practices in counselor education programs. Supervised experience in advanced counseling and in various phases of the counselor education program. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Counseling; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Education, Doctor of Philosophy or Education Specialist Cert degrees.

**Repeatable for 24 Credits**

**CED 9120 Seminar and Internship Supervising Counselors Cr. 3**

Theory and practice of supervision. Students supervise practicum counselors under staff guidance. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Counseling; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Education, Doctor of Philosophy or Education Specialist Cert degrees.

## CHE - Chemical Engineering

**CHE 2800 Material and Energy Balances Cr. 4**

Material balances, stoichiometry and simultaneous mass energy balances. Offered Fall.

**Prerequisites:** (PHY 2170 with a minimum grade of C- or PHY 2175 with a minimum grade of C-) and MAT 2020 with a minimum grade of C-  
**Fees:** \$10

**CHE 3100 Transport Phenomena I Cr. 3**

Presents a practical introduction to the field of transport phenomena and its applications, with a primary focus on the transport of momentum and mechanical energy balances in engineering systems. Students will develop the mathematical tools and skills necessary to design and analyze chemical process systems involving the movement or transfer of fluids (i.e., momentum transport) and the interchange among forms of mechanical energy as fluids flow. Offered Fall.

**Prerequisites:** BE 1500 with a minimum grade of C-, CHE 2800 with a minimum grade of C-, and MAT 2150 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**CHE 3220 Measurements Laboratory Cr. 2**

Laboratory course in the principles and practice of measuring chemical, physical and thermodynamic properties of importance to chemical engineering problems. Technical reports. Offered Winter.

**Prerequisites:** BE 1500 with a minimum grade of C-, BE 2100 with a minimum grade of C-, ENG 3050 with a minimum grade of C-, and CHE 3600 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$25

**CHE 3300 Thermodynamics: Chemical Equilibria Cr. 4**

Qualitative and quantitative treatment of homogeneous and heterogeneous phase and chemical equilibria. Use of chemical activities and activity coefficients relating ideal to actual systems. Use of reference states and excess properties of the prediction of equilibrium diagrams and the determination of feasibility of chemical reactions. Offered Winter.

**Prerequisites:** BE 1500 with a minimum grade of C-, CHE 2800 with a minimum grade of C-, and MAT 2150 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Fees:** \$10

**CHE 3400 Kinetics and Reactor Design Cr. 4**

Quantitative treatment of complex homogeneous and heterogeneous chemical reactions and the design of batch, stirred and flow reactor systems. Offered Fall.

**Prerequisites:** BE 1500 with a minimum grade of C-, CHE 3300 with a minimum grade of C-, and MAT 2150 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$10

**CHE 3510 Co-op Experience Cr. 1-3**

Presentation of oral and written report to peer group describing Co-op experience. Attendance required at the CHE and MSE seminar series for the semester. Offered Every Term.

**Prerequisites:** CHE 4260 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Repeatable for 3 Credits**

**CHE 3600 Transport Phenomena II Cr. 3**

Presents a practical introduction to the field of transport phenomena and its applications, with a primary focus on the transport of heat and mass of chemical species in engineering systems. Students will develop the mathematical tools and skills necessary to design and analyze chemical process systems involving the movement or transfer of thermal energy (i.e., heat transfer) and movement of a chemical species under a concentration gradient (i.e. mass transfer and diffusion). Offered Winter.

**Prerequisite:** BE 1500 with a minimum grade of C- and CHE 2800 with a minimum grade of C- and CHE 3100 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CHE 3800 Separation Processes Cr. 3**

Quantitative treatment of separation processes in which there is simultaneous heat and mass transfer. Offered Winter.

**Prerequisites:** BE 1500 with a minimum grade of C-, CHE 3100 with a minimum grade of C-, CHE 3300 with a minimum grade of C-, and CHE 3600 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$10

**CHE 3820 Chemical Engineering Laboratory Cr. 2**

Experimental study of chemical equilibria, reaction kinetics and rate processes. Laboratory case studies. Offered Fall.

**Prerequisites:** CHE 3220 with a minimum grade of C-, CHE 3400 with a minimum grade of C-, CHE 3800 with a minimum grade of C-, BE 1500 with a minimum grade of C-, and ENG 3060 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$100

**CHE 4200 Product and Process Design Cr. 3**

The overall design of chemical products, systems, and processes. Economic analysis, computational design calculations, and optimization of design based on factors such as economics, environmental protection and waste minimization, and safety. Offered Fall.

**Prerequisites:** CHE 3400 with a minimum grade of C-, CHE 3600 with a minimum grade of C-, and CHE 3800 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CHE 4260 Chemical Engineering Seminar I Cr. 0**

Offered Fall, Winter.

**Prerequisites:** CHE 3220 with a minimum grade of C- (may be taken concurrently), CHE 3300 with a minimum grade of C-, and CHE 3600 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CHE 4600 Process Dynamics and Simulation Cr. 3**

Application of system dynamics and mathematical modeling to design and analysis of chemical processing systems. Offered Fall.

**Prerequisites:** CHE 3400 with a minimum grade of C-, CHE 3600 with a minimum grade of C-, and CHE 3800 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$10

**CHE 4800 Chemical Process Integration Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Application of engineering and science background to the design of chemical processes. Comprehensive problems deal with sources of data, design principles and optimization techniques. Offered Winter.

**Prerequisite:** CHE 4200 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CHE 4860 Chemical Engineering Seminar II Cr. 1**

Offered Fall, Winter.

**Prerequisite:** CHE 4260 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CHE 4990 Directed Study Cr. 1-9**

Students select a field of chemical engineering for advanced study and instruction. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Repeatable for 9 Credits**

**CHE 5050 Statistics and Design of Experiments Cr. 3**

Application of modern statistical experimental design methods to improve effectiveness and success in experimental projects, in chemical industry manufacturing, and research and design. Offered Intermittently.

**Prerequisites:** BE 2100 with a minimum grade of C-, BE 1500 with a minimum grade of C-, (CHE 3200 with a minimum grade of C- or CHE 3600 with a minimum grade of C-), and CHE 3300 with a minimum grade of C-

**CHE 5060 Low-Cost Microfluidic and Millifluidic Systems: Design, Fabrication and Testing Cr. 3**

This course provides a hands-on, experimental introduction to the field of microfluidic and millifluidic devices. These devices are increasingly used for research, diagnostics, and treatment in cost-sensitive applications and low-resource settings. The content and methods focus on systems of interest for micro-scale biological/chemical processes and lab-on-chip applications. Project building methods employ readily available, low-cost materials and technologies, including 3D printing, polymer casting, and paper-based fluidics. The course consists of several hands-on design and build projects. Each project highlights a fabrication method and/or an analytical or processing objective. Participants work in groups to design, build and subsequently analyze the performance of functional systems using quantitative tools including: cell phone spectroscopy, electrical detection, quantitative image analysis. Not available for graduate credit. Offered Winter.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Biomedical Engineering, Biomedical Engg Honors, Chemical Engineering Honors or Chemical Engineering; enrollment is limited to Undergraduate level students.

**Fees:** \$50

**CHE 5100 Quantitative Physiology Cr. 4**

Basic principles of human physiology presented from the engineering perspective. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by mathematical models where feasible. Offered Fall, Winter.

**Equivalent:** BME 5010, ECE 5100, ME 5100

**CHE 5110 Fundamental Fuel Cell Systems Cr. 4**

Introduce various types of fuel cells, materials properties of electrodes and polymeric membranes, and electrochemical mechanisms. Reforming of various types of hydrocarbon fuel to hydrogen, and reforming technology. Offered Fall.

**Equivalent:** AET 5110, EVE 5130, ME 5110

**CHE 5120 Fundamentals of Battery Systems for Electric and Hybrid Vehicles Cr. 4**

Fundamental electrochemistry and engineering aspects for electric propulsion batteries, including lead acid, nickel metal hydride, and lithium ion technologies. Offered Intermittently.

**Equivalent:** AET 5310, EVE 5120, ME 5215

**CHE 5350 Polymer Science Cr. 3**

Fundamental relationships between chemical structure and physical properties of high polymers. Basic structures, states and transitions of polymers. Polymerization reactions and processes. Molecular weight, viscous flow and mechanical properties of polymers. Offered Fall.

**Prerequisites:** MAT 2150 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$10

**Equivalent:** MSE 5350

**CHE 5360 Polymer Processing Cr. 3**

A detailed analysis of polymer processing. Rheology of polymers, flow in tubes, calendaring, extrusion, coating and injection molding. Offered Intermittently.

**Prerequisites:** CHE 3200 with a minimum grade of C-

**Fees:** \$10

**Equivalent:** MSE 5360

**CHE 5450 Nanocarrier-based Drug Delivery Systems Cr. 3**

Fundamental concepts in nanotechnology as it relates to drug delivery, and some of the applications and breakthroughs in this area as it applies to medicine. Offered Intermittently.

**Prerequisites:** CHE 5420 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Unranked Undergrad, Junior or Senior; enrollment is limited to Graduate or Undergraduate level students.

**CHE 5811 Research Preparation II Cr. 1**

Preparation for Senior Research Project, CHE 6810. Offered Every Term.

**Prerequisites:** CHE 3200 with a minimum grade of C- and CHE 3300 with a minimum grade of C-

**CHE 5995 Special Topics in Chemical Engineering I Cr. 1-4**

A consideration of special subject matter in chemical engineering. Topics to be announced in Schedule of Classes. Offered Every Term.

**Repeatable for 8 Credits**

**CHE 5996 Chemical Engineering Research Cr. 1-6**

Research project. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**CHE 6100 Introduction to Sustainable Engineering Cr. 3**

Economic, environmental, social, and technological perspectives relevant to the design, operation and management of engineering activities.

Multiple perspectives addressed from a system sustainability view point. Offered Yearly.

**CHE 6450 Biochemical Engineering Cr. 3**

An introductory study of the principles of chemical engineering, biochemistry and biology which are essential for the design of industrial systems involving biological transformations. Offered Intermittently.

**Prerequisites:** CHE 3400 with a minimum grade of C- or CHE 3800 with a minimum grade of C-

**CHE 6570 Safety in the Chemical Process Industry Cr. 3**

Fundamental and practical experience necessary for safe operation of a chemical process plant. Actual industrial case studies conducted under industry supervision. Offered Winter.

**Prerequisites:** CHE 3400 with a minimum grade of C- or CHE 3800 with a minimum grade of C-

**CHE 6610 Risk Assessment Cr. 3**

Introduction to risk assessment in environmental hazard management with emphasis on the chemical industry, including hazard identification, exposure analysis and risk characterization. Offered Intermittently.

**CHE 6810 Chemical Engineering Research Project Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency Application of engineering and science background to the completion of a senior research project. Methods of research and analysis and interpretation of data. Preparation of a written research paper; oral presentation of research results. Offered Intermittently.

**Prerequisite:** CHE 4200 with a minimum grade of C- and CHE 4600 with a minimum grade of C-

**CHE 7060 Low-Cost Microfluidic Systems: Design, Fabrication, and Computational Analysis Cr. 3**

This course provides a hands-on, experimental introduction to the field of microfluidic and millifluidic devices. These devices are used for research, diagnostics, and treatment in cost-sensitive applications and low-resource settings. The content and methods focus on systems of interest for micro-scale biological/chemical processes and lab-on-chip applications. Project building methods employ readily available, low-cost materials and technologies, including 3D printing, polymer casting, and paper-based fluidics. The course consists of several hands-on design and build projects. Each project highlights a fabrication method and/or an analytical or processing objective. Participants will design and build functional fluidic systems and will analyze/optimize system performance of using computational fluid dynamic (CFD) tools. Not available for credit after CHE 5060. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$50

**CHE 7090 Writing for Engineering Research Cr. 3**

Provides an introduction to the basic principles of technical writing for career pursuit in an academic or industry setting, with a focus on professional manuscript and grant writing. Throughout the course, key principles examined will include the writing process, writing structure, making your writing clear and concise, and handling style, tone, and voice. Through assignments and lecture-based learning, students will examine the "dos" and the "don'ts" in preparing manuscripts for journal submission, abstracts, conference papers, letters to editors, and grants. Throughout the semester, students will receive faculty and peer critiques of their manuscript writing. Finally, students will create a foundation/government grant, with preference toward the research area of the faculty in which they work. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 7100 Advanced Engineering Mathematics Cr. 3**

Presentation, evaluation and use of mathematical methods within the framework of engineering problems; including ordinary and partial differential equations, transforms and vector operations. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** MSE 7100

**CHE 7200 Advanced Transport Phenomena Cr. 3**

Basic properties of heat, mass and momentum transfer systems; fundamental equations, transforms and vector operations; includes independent study project. Offered Winter.

**Prerequisite:** CHE 7100 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 7300 Advanced Thermodynamics Cr. 3**

Advanced presentation of the principles of thermodynamics; application to open systems, phase diagrams and chemical equilibria. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** MSE 7300

**CHE 7350 Polymer Solutions Cr. 3**

Solubility of polymers, configuration of chain molecules, colligative properties of dilute polymer solutions, spectroscopy, optical activity, light and x-ray scattering of polymer solutions, frictional properties of dissolved polymers, solution properties of polyelectrolytes. Offered Every Other Year.

**Prerequisite:** CHE 5350 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 7390 Tissue Engineering and Hybrid Systems Cr. 4**

Seminar and project based approach to the design, development, analysis and application of organ and tissue replacement systems which incorporate processed materials and living cells. Offered Every Other Year.

**Prerequisites:** BME 5370 with a minimum grade of C and (BME 5020 with a minimum grade of C or CHE 7100 with a minimum grade of C)

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BME 7390

**CHE 7400 Advanced Kinetics and Reactor Design Cr. 3**

Basic properties of reacting systems including the steady state approximation, the relationship of thermodynamics to kinetics, the treatment of coupled reaction problems and design of chemical reactors; includes independent study project. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**CHE 7990 Directed Study Cr. 1-9**

Library investigation of an approved project in chemical engineering. Independent study, conferences with supervisor and preparation of a comprehensive written and oral report. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 8510 Graduate Co-op Experience Cr. 1-3**

Presentation of oral and written reports to peer group describing co-op experience. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 8996 Research Cr. 1-9**

Library and laboratory investigation of an approved proposal for advanced research project. Conferences and periodic oral progress reports. Comprehensive report of entire project upon completion. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 30 Credits**

**CHE 8997 Chemical Engineering Graduate Seminar Cr. 0.5**

Advanced concepts in chemical engineering; presentation of research results. Must attend and present evidence of attending 30 hours of seminar over two-year period, and present one seminar. Offered Every Term.

**Prerequisite:** CHE 7200 with a minimum grade of C and CHE 7400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**CHE 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CHE 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CHE 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CHE 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CHE 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHE 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## CHI - Chinese

**CHI 1010 Elementary Chinese I Cr. 4**

Introduction to the written and spoken forms of Chinese. Offered for undergraduate credit only. Offered Yearly.

**Fees:** \$5

**CHI 1020 Elementary Chinese Cr. 4**

Continuation of CHI 1010. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** CHI 1010 with a minimum grade of D-

**Fees:** \$5

**CHI 2000 Chinese Phonetics Cr. 1**

Students will have the hands-on experience of learning Chinese sounds and tones with the intensive instruction and correction of the instructor. After studying the articulatory mechanisms for the Chinese phonetic inventory and system in theory, students will practice them in different combinations and contexts with that native accuracy as the target. Offered Winter.

**Equivalent:** LIN 2000

**Repeatable for 2 Credits**

**CHI 2010 Intermediate Chinese Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Completion of Chinese language sequence. Offered Yearly.

**Prerequisite:** CHI 1020 with a minimum grade of D-

**Fees:** \$5

**CHI 2020 Intermediate Chinese II Cr. 4**

Continuation of CHI 2010. Offered Winter.

**Prerequisites:** CHI 2010 with a minimum grade of D-

**CHI 2030 Chinese Character Writing Cr. 3**

The most difficult part of Chinese learning is character writing. Basic stroke orders, intermediate literacy level. Art of Chinese calligraphy. Offered Spring/Summer.

**Prerequisites:** CHI 1010 with a minimum grade of D-

**CHI 2050 Gateway to Chinese Civilizations Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry

Introduction to Chinese culture, society, and politics. Offered Every Term.



**CHI 3000 Chinese Mythology and the Supernatural Cr. 3****Satisfies General Education Requirement:** Cultural Inquiry

The study of Chinese mythical and supernatural literature from the late Zhou through the Qing dynasties (from around 10th century BCE to 18th century CE); the cultural functions of myth and the supernatural as they relate to nation, ethnic identities, social and political structures, as well as religious and philosophical ideals. Taught in English. Offered Fall, Winter.

**CHI 3010 Contemporary Chinese Pop Culture Cr. 3**

Introduction to Chinese pop culture: values, functions, and changes. Offered Winter.

**CHI 3022 Introduction to Chinese Literature Cr. 3****Satisfies General Education Requirement:** Cultural Inquiry

Genres and traditions of Chinese literature; influence on China of today. Offered Every Term.

**CHI 3100 Advanced Chinese I Cr. 4**

Continuation of CHI 2020. Offered Fall.

**Prerequisites:** CHI 2020 with a minimum grade of D-**CHI 3200 Advanced Chinese II Cr. 4**

Continuation of CHI 3100. Offered Winter.

**Prerequisites:** CHI 3100 with a minimum grade of D-**CHI 3990 Directed Study Cr. 1-6**

Directed study tailored to student and faculty interests and specializations. Offered Every Term.

**Repeatable for 9 Credits****CHI 4010 Business Chinese Cr. 3**

Basic knowledge of business Chinese; basic abilities of listening, speaking, reading, writing, and translating in business Chinese. Offered Fall.

**Prerequisites:** CHI 3200 with a minimum grade of D-**Restriction(s):** Enrollment is limited to Undergraduate level students.**CHI 5000 Space and Everyday Life in Chinese Literature and Film Cr. 3**

This course explores spaces and everyday practices within these spaces represented in Chinese literature, film, as well as art. We will primarily focus on everyday life from early modern China through modern times, discussing the interactions among spaces, practices of daily life, and literary as well as cinematic representations. A knowledge of modern Chinese is not required. Offered Every Other Year.

**Equivalent:** ASN 5000**CHI 5210 Introduction to Chinese Linguistics Cr. 3**

Writing, sound and grammar systems of Chinese; interaction between Chinese language and Chinese society. Offered Fall.

**Equivalent:** LIN 5220**CHI 5220 Languages of Asia Cr. 3**

Introduction to major language families in Asia; grammar, sounds, language contacts. Offered Winter.

**Equivalent:** JPN 5220, LIN 5100**CHI 5230 Grammar of Chinese Cr. 3**

Chinese grammar from perspectives of negation, question formation, aspects and different parts of speech, and the like. Offered Fall.

**Equivalent:** LIN 5240**CHI 5300 Teaching Chinese as a Second Language Cr. 1-3**

Introduction to basic teaching grammar and sound rules and general teaching methodology. Offered Winter.

**Prerequisites:** CHI 3100 with a minimum grade of D-**Equivalent:** LED 5300

## CHM - Chemistry

**CHM 1000 Chemistry and Your World Cr. 4****Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

Facts and theories from analytical, inorganic, organic, and physical chemistry, and from biochemistry; their consequences in life processes and the environment. Meets General Education Laboratory Requirement when elected for 4 credits. Offered Fall, Winter.

**Fees:** \$110**CHM 1020 Survey of General Chemistry Cr. 4****Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

High school chemistry not required. First course in the terminal sequence consisting of CHM 1020 and CHM 1030. Matter and energy in chemistry, chemical symbols and equations, structure and properties of atoms, introduction to chemical bonding; periodicity in chemistry, solids, liquids, gases, solutions, acids and bases, and equilibrium. Meets General Education Laboratory Requirement. Offered Fall, Winter.

**Prerequisites:** Math Permit to Reg - (L1-L4) with a test score minimum of 2-4, MAT 0993-6XXX with a minimum grade of C, MAT Permit to Reg ACT/SAT with a test score minimum of 2-4, ACT Math with a test score minimum of 18-36, SAT Mathematics with a test score minimum of 490-800, or SAT MATH (POST-2016) with a test score minimum of 490-800**Fees:** \$110**CHM 1030 Survey of Organic/Biochemistry Cr. 4**

Organic and biological chemistry; brief introduction to organic chemistry, emphasizing classes of compounds important in biochemical processes; survey of biochemistry with applications to nutrition, physiology, and clinical chemistry; protein structure; intermediary metabolism; molecular biology; and metabolic regulation. Offered Winter.

**Fees:** \$110**CHM 1040 Chemistry Skills and Reasoning Cr. 4**

Reasoning and mathematical skills needed for development of a scientific approach in chemistry. No credit if taken after any other chemistry course. Offered Every Term.

**Prerequisites:** MAT 0993-6XXX with a minimum grade of C-, ACT Math with a test score minimum of 21-36, SAT MATH (POST-2016) with a test score minimum of 530-800, MAT Permit to Reg ACT/SAT with a test score minimum of 2-4, or Math Permit to Reg - (L1-L4) with a test score minimum of 2-4**CHM 1060 General, Organic and Biochemistry Cr. 5****Satisfies General Education Requirement:** Natural Scientific Inquiry  
Chemistry 1060 is an integrated approach to the study of General Chemistry, Organic Chemistry, and Biochemistry for students pursuing careers in health-related fields. In each area, Health Links and Biochemistry Links will be used to demonstrate key chemistry principles. The laboratory experiments focus on general, organic, and biochemistry. Offered Fall, Winter.**Fees:** \$100



**CHM 1100 General Chemistry I Cr. 4**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

Introduction to the principles of chemistry. Chemistry and measurements, chemical formulas and equations, chemical reactions, gas laws, thermochemistry, quantum theory of the atom, electron configurations and periodicity, ionic and covalent bonding, molecular geometry and chemical bonding, states of matter, and solutions. Satisfies General Education laboratory requirement upon completion of both CHM 1100 and 1130. Only two credits if taken after CHM 1020. No credit if taken after CHM 1125. Offered Every Term.

**Prerequisites:** (CHM 1040 with a minimum grade of C-, CHM Permit to Reg (L1-L3) CPE with a test score minimum of 2-3, or (CHM 1020 with a minimum grade of C- and 1 of (MAT 1070 with a minimum grade of C-, MAT Permit to Reg ACT/SAT with a test score minimum of 3-4, or Math Permit to Reg - (L1-L4) with a test score minimum of 3-4)))

**Equivalent:** CHM 1125

**CHM 1125 General Chemistry I for Engineers Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

Introduction to the principles of chemistry. Chemistry and measurements, chemical formulas and equations, chemical reactions, gas laws, thermochemistry, quantum theory of the atom, electron configurations and periodicity, ionic and covalent bonding, molecular geometry and chemical bonding, states of matter, and solutions. Satisfies General Education laboratory requirement upon completion of both CHM 1125 and 1130. Only one credit if taken after CHM 1020. No credit if taken after CHM 1100. Offered Every Term.

**Prerequisites:** (CHM 1040 with a minimum grade of C-, CHM Permit to Reg (L1-L3) CPE with a test score minimum of 2-3, or (CHM 1020 with a minimum grade of C- and 1 of (MAT 1070 with a minimum grade of C-, MAT Permit to Reg ACT/SAT with a test score minimum of 3-4, or Math Permit to Reg - (L1-L4) with a test score minimum of 3-4)))

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** CHM 1100

**CHM 1130 General Chemistry I Laboratory Cr. 1**

Laboratory course designed to introduce students to the scientific method, properties of materials, the role of energy, structure and spectroscopy. Satisfaction of General Education lab requirement is awarded only upon successful completion of both CHM 1100 (or CHM 1125) and this lab course. Offered Every Term.

**Prerequisites:** CHM 1100 with a minimum grade of C- (may be taken concurrently) or CHM 1125 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$110

**CHM 1140 General Chemistry II Cr. 4**

Kinetics, equilibria, acids, bases, thermodynamics, electrochemistry, oxidation-reduction reactions, and coordination chemistry. A variety of examples from science, engineering, technology and everyday life will be emphasized. Offered Every Term.

**Prerequisites:** CHM 1100 with a minimum grade of C-, CHM 1220 with a minimum grade of C-, CHM 1125 with a minimum grade of C-, or CHM 1225 with a minimum grade of C-

**Equivalent:** CHM 1145

**CHM 1145 General Chemistry II for Engineers Cr. 3**

Kinetics, equilibria, acids, bases, thermodynamics, electrochemistry, oxidation-reduction reactions, and coordination chemistry. A variety of examples from science, engineering, technology and everyday life will be emphasized. Offered Every Term.

**Prerequisites:** CHM 1100 with a minimum grade of C-, CHM 1220 with a minimum grade of C-, CHM 1125 with a minimum grade of C-, or CHM 1225 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** CHM 1140

**CHM 1150 General Chemistry II Laboratory Cr. 1**

Experiments in advanced topics such as chemical equilibrium, monoprotic acid and base titrations, buffers, electrochemistry, solubility equilibria and chemical kinetics. Offered Every Term.

**Prerequisites:** CHM 1140 with a minimum grade of C- (may be taken concurrently) and (CHM 1130 with a minimum grade of C- or CHM 1230 with a minimum grade of C-)

**Fees:** \$110

**CHM 1240 Organic Chemistry I Cr. 4**

Introductory organic chemistry combined with the general principles of chemistry. Carbon compounds and chemical bonding, acid-based chemistry, stereochemistry and introductory organic reactions. Offered Every Term.

**Prerequisites:** CHM 1140 with a minimum grade of C-

**CHM 1250 Organic Chemistry I Laboratory Cr. 1**

Integrated general/organic chemistry laboratory focusing on spectroscopy, acid-based chemistry, molecular modeling and organic reactions as well as some attention to chromatography. Offered Every Term.

**Prerequisites:** CHM 1240 with a minimum grade of C- (may be taken concurrently) and CHM 1150 with a minimum grade of C-

**Fees:** \$110

**CHM 2220 Organic Chemistry II Cr. 4**

Organic reactions of functional groups such as aldehydes, ketones and related carbonyl compounds. Extensive discussion of the interface of organic/biochemistry and bioinorganic chemistry. No credit after if taken after CHM 2225. Offered Every Term.

**Prerequisites:** CHM 1240 with a minimum grade of C-

**CHM 2225 Organic Chemistry II for Engineers Cr. 3**

Organic reactions of functional groups such as aldehydes, ketones and related carbonyl compounds. Extensive discussion of the interface of organic/biochemistry and bioinorganic chemistry. No credit after if taken after CHM 2220. Offered Every Term.

**Prerequisites:** CHM 1240 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CHM 2230 Organic Chemistry II Laboratory Cr. 1**

Synthesis of organic and bio-organic compounds. Offered Every Term.

**Prerequisites:** CHM 2220 with a minimum grade of C- (may be taken concurrently) and CHM 1250 with a minimum grade of C-

**Fees:** \$110

**CHM 2999 Honors Research Problems in Chemistry Cr. 2-4**

Research projects under the direction of a senior faculty member. Offered Every Term.

**Prerequisites:** (CHM 1240 with a minimum grade of C and CHM 1250 with a minimum grade of C) or CHM 1410 with a minimum grade of C

**CHM 3000 Metals in Biology Cr. 3**

Descriptive approach to metals involved in biological systems. Offered Fall.

**Prerequisites:** CHM 1240 with a minimum grade of C

**CHM 3020 Intermediate Inorganic Chemistry I Cr. 3**

Emphasizes chemistry of the main group elements and includes basic coordination chemistry of the transition metals. Offered Winter.

**Prerequisites:** CHM 1240 with a minimum grade of C

**CHM 3120 Analytical Chemistry Cr. 3**

The basic principles of analytical chemistry with an emphasis on quantitative chemical analysis, theoretical and practical aspects of equilibrium calculations including statistics, spectroscopy and instrumentation will be covered. Analytical examples from science, engineering, technology and biochemistry will be included. Offered Fall, Winter.

**Prerequisites:** CHM 1140 with a minimum grade of C and CHM 1150 with a minimum grade of C

**CHM 3130 Analytical Chemistry Laboratory Cr. 1**

In this laboratory course, students will learn to use quantitative analytical chemistry techniques to determine the amount of various compounds in an unknown sample. These techniques include acid-base titrations, reduction-oxidation (redox) titrations, uv-vis spectrophotometry, fluorescence spectrophotometry, column and gas chromatography. Offered Fall, Winter.

**Prerequisites:** CHM 3120 with a minimum grade of C (may be taken concurrently)

**Fees:** \$100

**CHM 4850 Frontiers in Chemistry Cr. 1**

Fields of fundamental chemistry now under investigation, presented by invited specialists actively engaged in research. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Chemistry or Chemistry Honors; enrollment limited to students in a BS in Chemistry or Bachelor of Arts degrees.

**Repeatable for 2 Credits**

**CHM 5020 Intermediate Inorganic Chemistry II Cr. 3**

Transition metal chemistry. Coordination compounds and organometallics. Bonding theories and reactivity. Synthesis, purification, and characterization of inorganic compounds with an emphasis on transition metal compounds. Offered Fall.

**Prerequisites:** CHM 6070 with a minimum grade of C or (CHM 3020 with a minimum grade of C and CHM 5400-5440 with a minimum grade of C)

**Fees:** \$110

**CHM 5160 Instrumental Analytical Chemistry Cr. 3**

Application of modern instrumental methods to quantitative analysis. Methods that relate instrumental response to chemical concentrations or content. Calibration, data handling, and data evaluation. Emission, flame, infrared, Raman, fluorescence, and magnetic resonance spectroscopy. Mass spectrometry. Electrochemical methods. Chromatography. Offered Fall.

**Prerequisites:** (CHM 5400 with a minimum grade of C, CHM 5420 with a minimum grade of C, or CHM 5440 with a minimum grade of C), CHM 3120 with a minimum grade of C, and PHY 2180 with a minimum grade of C

**CHM 5400 Biological Physical Chemistry Cr. 3**

Presentation of physical chemistry topics: thermodynamics, solution equilibria, chemical kinetics, quantum chemistry, spectroscopy, statistical mechanics, transport processes, and structure with biological applications. Offered Winter.

**Prerequisites:** CHM 3120 with a minimum grade of C, MAT 2010 with a minimum grade of C, and (PHY 2130 with a minimum grade of C (may be taken concurrently) or PHY 2170 with a minimum grade of C (may be taken concurrently))

**CHM 5420 Physical Chemistry I Cr. 3**

Chemical thermodynamics, phase equilibrium, solutions, surface chemistry, electrochemistry. Only two credits applicable toward degree after CHM 5400. Offered Fall.

**Prerequisites:** (CHM 2280 with a minimum grade of C or CHM 3120 with a minimum grade of C), MAT 2020 with a minimum grade of C, and PHY 2170 with a minimum grade of C (may be taken concurrently)

**CHM 5440 Physical Chemistry II Cr. 4**

Kinetic theory, empirical and theoretical kinetics, quantum theory, atomic and molecular structure, molecular spectroscopy, statistical mechanics. Only three credits applicable to degree after CHM 5400. Offered Winter.

**Prerequisites:** (CHM 2280 with a minimum grade of C or CHM 3120 with a minimum grade of C), MAT 2020 with a minimum grade of C, and PHY 2170 with a minimum grade of C (may be taken concurrently)

**CHM 5510 Chemical Synthesis Laboratory Cr. 3**

Advanced techniques for the synthesis, purification and characterization of organic compounds. Offered Fall.

**Prerequisites:** CHM 1420 with a minimum grade of C or (CHM 2220 with a minimum grade of C and CHM 2230 with a minimum grade of C)

**Fees:** \$110

**CHM 5550 Physical Chemistry Laboratory Cr. 2**

**Satisfies General Education Requirement:** Writing Intensive Competency Principles of measurement. Fundamental investigations of thermodynamics. Fundamental spectroscopic and kinetic measurements. Offered Fall, Winter.

**Prerequisites:** (CHM 5400 with a minimum grade of C (may be taken concurrently), CHM 5420 with a minimum grade of C (may be taken concurrently), or CHM 5440 with a minimum grade of C (may be taken concurrently)) and PHY 2180 with a minimum grade of C

**Fees:** \$110

**CHM 5570 Instrumental Analytical Chemistry Laboratory Cr. 2**

Lecture and laboratory experiments covering electronics, measurement, and instrumentation. Principles and analytical applications of electrochemistry, chromatography, and spectroscopy including UV-visible, IR, magnetic resonance, and mass spectroscopy. Offered Winter.

**Prerequisites:** CHM 5160 with a minimum grade of C

**Fees:** \$110

**CHM 5600 Survey of Biochemistry Cr. 3**

Protein structure and its relationship to function. Principles of enzyme catalysis. Allosteric regulation of protein function and enzyme catalysis. Pathways of carbohydrate, fat, and protein metabolism in eukaryotic organisms. Introduction to mechanisms of energy coupling and photosynthesis. Information transfer in living systems. Molecular biology. Offered Fall, Winter.

**Prerequisites:** CHM 1420 with a minimum grade of C, CHM 2220 with a minimum grade of C, or CHM 2225 with a minimum grade of C

**CHM 5900 Biomedical Research as Discovery Cr. 2**

Solving biochemical research problems using laboratory research tools including computational methods. Offered Yearly.

**Prerequisites:** CHM 6610 with a minimum grade of C and CHM 6620 with a minimum grade of C

**Fees:** \$100

**CHM 5998 Honors Thesis Research in Chemistry Cr. 2-4**

Original investigation under direction of senior staff member. Submission of B.S. thesis or manuscript in publication format. Presentation of public lecture on B.S. research. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Biochem & Chem Bio Honors or Chemistry Honors.

**Repeatable for 8 Credits**

**CHM 5999 Research in Chemistry Cr. 2-4**

Original investigation under the direction of a senior staff member. Submission of B.S. thesis or manuscript in publication format. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Biochem & Chem Bio Honors, Biochem & Chemical Biology, Chemistry or Chemistry Honors.

**Repeatable for 8 Credits**

**CHM 6060 Materials Chemistry and Engineering Cr. 3**

Solid state structure and bonding. Crystallography, defects, and non-stoichiometry. Phase diagrams. Synthesis and properties of extended solids and nanomaterials. Molecular interactions and statistical physics of soft matter. Synthesis and characterization techniques of polymeric and colloidal material. Physical properties, phase behavior, self-assembly and ordering in synthetic and biological soft matter. Offered Intermittently.

**Prerequisites:** CHM 3020 with a minimum grade of C

**CHM 6070 Advanced Bioinorganic Chemistry Cr. 3**

Applications of inorganic chemistry principles to understanding biological systems including metalloenzymes. Offered Winter.

**Prerequisite:** CHM 3000 with a minimum grade of C

**CHM 6090 Organometallic Chemistry Cr. 3**

Models and Applications of the Organometallic Chemistry of the Transition Metals including Activation of Small Molecules and Bioorganometallics. Offered Winter.

**Prerequisite:** CHM 5020 with a minimum grade of C

**CHM 6100 Theory of Analytical Chemistry Cr. 3**

Provides an overview of the fundamental theory and instruments required to conduct analytical measurements for diverse applications. Offered Yearly.

**Prerequisites:** (CHM 2280 with a minimum grade of C and CHM 2290 with a minimum grade of C) or (CHM 3120 with a minimum grade of C and CHM 3130 with a minimum grade of C)

**CHM 6120 Electroanalytical Chemistry Cr. 3**

This course provides an overview of the fundamental concepts of electrochemical science and their applications in catalysis, batteries, electrochemical sensors. Offered Intermittently.

**Prerequisites:** (CHM 2280 with a minimum grade of C and CHM 2290 with a minimum grade of C) or (CHM 3120 with a minimum grade of C and CHM 3130 with a minimum grade of C)

**CHM 6160 Separation Science Cr. 3**

Fundamentals, instrumentation, and modern applications in medicine, cannabis and food testing, and environmental monitoring. Offered Intermittently.

**Prerequisite:** CHM 2280 with a minimum grade of C or CHM 3120 with a minimum grade of C

**CHM 6170 Advances in Bioanalytical Chemistry Cr. 3**

How analytical methods are used to obtain information regarding biological systems. Offered Intermittently.

**Prerequisites:** (CHM 2280 with a minimum grade of C and CHM 2290 with a minimum grade of C) or (CHM 3120 with a minimum grade of C and CHM 3130 with a minimum grade of C)

**CHM 6180 Mass Spectrometry Cr. 3**

This course provides an overview of the fundamental concepts of electrochemical science and their applications in catalysis, batteries, electrochemical sensors. Offered Intermittently.

**Prerequisites:** ((CHM 2280 with a minimum grade of C and CHM 2290 with a minimum grade of C) or (CHM 3120 with a minimum grade of C and CHM 3130 with a minimum grade of C)) and CHM 5160 with a minimum grade of C

**CHM 6200 Organic Structures and Mechanisms Cr. 3**

Structure and stereochemistry of organic molecules. Correlations between structure and chemical and physical properties. Reaction mechanisms. Offered Fall.

**Prerequisites:** CHM 2220 with a minimum grade of C or CHM 2225 with a minimum grade of C

**CHM 6220 Organic Reactions and Synthesis Cr. 3**

Alkylation, condensation, and Grignard reactions; synthesis of acid derivatives; cycloadditions and unimolecular rearrangements. Scope and limitations of important synthetic methods of organic chemistry. Offered Winter.

**Prerequisite:** CHM 6200 with a minimum grade of C

**CHM 6240 Organic Spectroscopy Cr. 3**

Application of IR, NMR, UV, and mass spectrometry to the identification of organic compounds. Emphasis on interpretation of spectra, especially NMR. Recommended for students intending to do graduate or industrial work in organic chemistry. Offered Winter.

**Prerequisite:** CHM 1420 with a minimum grade of C or CHM 2220 with a minimum grade of C

**CHM 6270 Advanced Bioorganic Chemistry and Drug Design Cr. 3**

Studies of biological problems using organic synthetic methods and applications to drug design. Offered Fall.

**Prerequisite:** CHM 6620 with a minimum grade of C

**CHM 6410 Statistical Thermodynamics Cr. 3**

Statistical methods of determining thermodynamic properties of bulk materials from molecular properties. Real gases at high density, crystals, liquids; phase transitions, transport properties Offered Intermittently.

**Prerequisite:** CHM 5400 with a minimum grade of C or CHM 5420 with a minimum grade of C or CHM 5440 with a minimum grade of C

**CHM 6440 Computational Chemistry Cr. 3**

Aspects of computational chemistry pertinent to effective use of molecular modeling techniques. Molecular mechanics, semi-empirical and ab initio calculations, molecular dynamics. Offered Intermittently.

**Prerequisite:** CHM 5440 with a minimum grade of C

**Fees:** \$95

**CHM 6470 Quantum Chemistry Cr. 3**

Theorems of quantum mechanics, approximation methods, solutions to simple atomic and molecular systems, electronic structure of many-electron atoms and molecules, chemical bonding. Offered Intermittently.

**Prerequisites:** CHM 5400 with a minimum grade of C, CHM 5420 with a minimum grade of C, or CHM 5440 with a minimum grade of C

**CHM 6610 Biological Chemistry Laboratory Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Basic experiments in isolation, purification, and analysis of biomolecules. Techniques currently used in molecular biology and recombinant DNA procedures stressed. Offered Fall, Winter.

**Prerequisite:** CHM 6620 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Biochem & Chem Bio Honors, Biochem & Chemical Biology, Chemistry or Chemistry Honors.

**Fees:** \$110

**CHM 6620 Metabolism: Pathways and Regulation Cr. 3**

Major metabolic pathways of carbohydrate, fatty acid, amino acid, and nucleotide synthesis and degradation. Pathways and mechanisms of energy generation. Hormonal and allosteric regulation of enzyme activity. Offered Fall.

**Prerequisites:** CHM 2220 with a minimum grade of C

**CHM 6635 Tools of Molecular Biology Cr. 3**

Principles underlying genetic and biochemical methods; complements work in lab CHM 6610. Offered Winter.

**Prerequisite:** CHM 6620 with a minimum grade of C

**CHM 6640 Molecular Biology Cr. 3**

Nucleic acid structure and function. Mechanism and control of replication, transcription, and translation. Mutation, genetic recombination, and recombinant DNA. Membranes and organelles. Offered Winter.

**Prerequisite:** CHM 6620 with a minimum grade of C

**CHM 6680 Clinical and Molecular Aspects of Cancer Cr. 3**

Current molecular, biochemical, and clinical aspects of human cancer for students without prior exposure to the topic. Offered Yearly.

**Prerequisite:** CHM 6620 with a minimum grade of C or (CHM 5600 with a minimum grade of C and BIO 1510 with a minimum grade of C)

**CHM 6700 Green Chemistry: Mindful Design in Science, Engineering, and Medicine Cr. 3**

Green Chemistry is the design of chemical products, processes, and instrumentation that reduce or eliminate the use and generation of hazardous substances. While there are many mechanisms and tools available to assess the impact of materials and processes on human health and the environment, there are few tools available to help design and create products as such. This course will present the fundamentals of the 12 principles of green chemistry and explore relevant examples of their practical use in commercial applications. It will explore examples from a wide spectrum of industrial sectors including research and development, medical applications, and electronics/instrumentation. Students will analyze how chemists and other researchers in the sciences engineering, and medicine can help address global human health and environmental issues. They will also evaluate the extent to which a focus on green chemistry can boost innovation and time to market while lowering costs. Offered Yearly.

**Prerequisites:** CHM 2220 with a minimum grade of C (may be taken concurrently) or CHM 2225 with a minimum grade of C (may be taken concurrently)

**CHM 6740 Laboratory Safety Cr. 1-2**

Discussion and demonstration of safe laboratory practice. Use, storage and disposal of ordinary and hazardous substances; personal protection devices; regulations and codes. Required for all graduate degrees in chemistry. Not for chemistry major credit. Offered Fall, Winter.

**CHM 6990 Directed Study Cr. 1-4**

Offered Every Term.

**Repeatable for 8 Credits**

**CHM 6991 Internship in Chemistry Cr. 1**

Practical research experience through visiting a university, industry, or national laboratory. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Chemistry; enrollment is limited to Graduate level students.

**Repeatable for 2 Credits**

**CHM 7010 Descriptive Inorganic Chemistry Cr. 3**

Reactions and reactivity of inorganic compounds. Emphasizes mechanistic and synthetic approaches to transition metal, organometallic, main group chemistry. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7060 Materials Chemistry and Engineering Cr. 3**

Solid state structure and bonding. Crystallography, defects, and non-stoichiometry. Phase diagrams. Synthesis and properties of extended solids and nanomaterials. Molecular interactions and statistical physics of soft matter. Synthesis and characterization techniques of polymeric and colloidal material. Physical properties, phase behavior, self-assembly and ordering in synthetic and biological soft matter. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7070 Advanced Bioinorganic Chemistry Cr. 3**

Applications of inorganic chemistry principles to understanding biological systems including metalloenzymes. Offered Intermittently.

**Prerequisite:** CHM 3000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7090 Organometallic Chemistry Cr. 3**

Models and Applications of the Organometallic Chemistry of the Transition Metals including Activation of Small Molecules and Bioorganometallics. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7100 Theory of Analytical Chemistry Cr. 3**

Physicochemical principles applied to reaction equilibria and kinetics of analytical importance. Approaches to problem solving in complex systems, principally in the solution phase. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7120 Electroanalytical Chemistry Cr. 3**

The theory and practice of modern voltammetric methods as applied to analytical, kinetic, and mechanistic studies. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7142 Data Analysis Cr. 3**

Application of statistics, chemometrics, and experimental design to the interpretation of chemical measurements; validation of analytical methods; practice and theory of sampling for chemical measurements. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7160 Separation Science Cr. 3**

Fundamentals, instrumentation, and modern applications in medicine, cannabis and food testing, and environmental monitoring. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7170 Advances in Bioanalytical Chemistry Cr. 3**

How analytical methods are used to obtain information regarding biological systems. Offered Intermittently.

**Prerequisite:** CHM 5160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7180 Mass Spectrometry Cr. 3**

Topics will include ICP, ICP-MS, AA, LIBX, MIPS, etc. Instrumentation concepts. Review of contemporary literature. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7200 Organic Structures and Mechanisms Cr. 3**

Structure and stereochemistry of organic molecules. Correlations between structure and chemical and physical properties. Reaction mechanisms. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7220 Organic Reactions and Synthesis Cr. 3**

Alkylation, condensation, and Grignard reactions; synthesis of acid derivatives; cycloadditions and unimolecular rearrangements. Scope and limitations of important synthetic methods of organic chemistry. Offered Winter.

**Prerequisite:** CHM 7200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7240 Organic Spectroscopy Cr. 3**

Application of IR, NMR, UV, and mass spectrometry to the identification of organic compounds. Emphasis on interpretation of spectra, especially NMR. Recommended for students intending to do graduate or industrial work in organic chemistry. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.



**CHM 7270 Advanced Bioorganic Chemistry and Drug Design Cr. 3**

Studies of biological problems using organic synthetic methods and applications to drug design. Offered Intermittently.

**Prerequisite:** CHM 6620 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7410 Statistical Thermodynamics Cr. 3**

Statistical methods of determining thermodynamic properties of bulk materials from molecular properties. Real gases at high density, crystals, liquids; phase transitions, transport properties. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7430 Chemical Kinetics Cr. 3**

Empirical analysis of reaction rates, theories of chemical kinetics, gas phase reactions, molecular collisions and non-thermal reactions, and kinetics in liquids. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7440 Computational Chemistry Cr. 3**

Aspects of computational chemistry pertinent to effective use of molecular modeling techniques. Molecular mechanics, semi-empirical and ab initio calculations, molecular dynamics. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$15

**CHM 7470 Quantum Chemistry Cr. 3**

Theorems of quantum mechanics, approximation methods, solutions to simple atomic and molecular systems, electronic structure of many-electron atoms and molecules, chemical bonding. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7480 Molecular Spectroscopy Cr. 3**

Basic theory of interaction of molecules with the electromagnetic field. Rotational, vibrational, and electronic spectra of molecules; elements of lasers, multiphoton spectroscopy. Offered Every Other Year.

**Prerequisite:** CHM 7470 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7600 Structure and Function of Biomolecules Cr. 3**

Introduction to the structure and function of macromolecules of biological importance. Emphasis on bioenergetics, nucleic acid and protein structure and chemical reactivities, enzyme catalysis, enzyme kinetics, carbohydrate and lipid structure and function, and membrane structure. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7620 Metabolism: Pathways and Regulation Cr. 3**

Major metabolic pathways of carbohydrate, fatty acid, amino acid, and nucleotide synthesis and degradation. Pathways and mechanisms of energy generation. Hormonal and allosteric regulation of enzyme activity. Offered Fall.

**Prerequisite:** CHM 7600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7635 Tools of Molecular Biology Cr. 3**

Principles underlying genetic and biochemical methods; complements work in lab CHM 6610. Offered Yearly.

**Prerequisite:** CHM 7620 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7640 Molecular Biology Cr. 3**

Nucleic acid structure and function. Mechanism and control of replication, transcription, and translation. Mutation, genetic recombination, recombinant DNA. Membranes and organelles. Offered Winter.

**Prerequisite:** CHM 7600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7680 Clinical and Molecular Aspects of Cancer Cr. 3**

Current molecular, biochemical, and clinical aspects of human cancer. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7700 Green Chemistry: Mindful Design in Science, Engineering, and Medicine Cr. 3**

Green Chemistry is the design of chemical products, processes, and instrumentation that reduce or eliminate the use and generation of hazardous substances. While there are many mechanisms and tools available to assess the impact of materials and processes on human health and the environment, there are few tools available to help design and create products as such. This course will present the fundamentals of the 12 principles of green chemistry and explore relevant examples of their practical use in commercial applications. It will explore examples from a wide spectrum of industrial sectors including research and development, medical applications, and electronics/instrumentation. Students will analyze how chemists and other researchers in the sciences engineering, and medicine can help address global human health and environmental issues. They will also evaluate the extent to which a focus on green chemistry can boost innovation and time to market while lowering costs. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7740 Responsible Conduct of Research Cr. 1**

Recognition of and approach to ethical issues that chemistry students may confront during their careers; the tools for dealing with these quandaries; procedures for reporting and resolving such conflicts. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Chemistry.

**CHM 7770 Proposals in Chemical Research Cr. 2**

This course is writing-intensive and based on hands-on exercises aiming to conceive and articulate novel scientific ideas in an effective way. Strategies will be taught on how to extract information from peer-reviewed papers, how to develop concise and descriptive research aims, and how to defend their ideas in written and oral formats. Topics in this course include hypothesis-driven research, basics of extramural funding, literature search, the meaning of "Intellectual Merit & Broader Impacts", designing experiments, reporting results, tutorials on relevant scientific software, and the criteria for peer-review. The development of personal statements and biosketches will also be covered. Offered Fall.

**Prerequisite:** CHM 7100 with a minimum grade of B or CHM 7600 with a minimum grade of B or CHM 7010 with a minimum grade of B or CHM 7200 with a minimum grade of B or CHM 7470 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 7777 Chemistry Biology Interface Seminar Series Cr. 1**

The Chemistry Biology Interface (CBI) seminar series will expose students to CBI-related research, CBI-related professional development activities, review of current literature, topics in rigor and reproducibility, and networking social activities. These activities will be in the format of presentations, panel discussions, workshops, small group discussions, or social activities. The goal is for graduate students from discipline-specific fields to move across a multi-disciplinary landscape, or for students already working in inter-disciplinary fields, such as chemical biology, to gain new expertise in specific disciplines. Beyond scholarly goals, the seminar series will enrich the graduate experience by providing career guidance, non-laboratory skill development, training in rigor and reproducibility, and professional networking. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 7777, PSC 7777



**CHM 7990 Directed Study Cr. 1-4**

Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CHM 8190 Advanced Topics in Analytical Chemistry Cr. 1-3**

The following topics offered in different semesters: sample preparation, surface analysis, analytical mechanisms, advanced instrumentation, computer interfacing. Offered Intermittently.

**Prerequisite:** CHM 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CHM 8290 Advanced Topics in Organic Chemistry Cr. 1-3**

The following topics offered in different semesters: physical-organic chemistry; kinetics of organic reactions; structure-reactivity correlations; reaction mechanisms; molecular orbital theory in organic chemistry; photochemistry; free radical chemistry; polymer chemistry; recent developments in organic chemistry; synthetic strategy; chemistry of natural products including steroids, terpenes, alkaloids, carbohydrates, and proteins. Offered Intermittently.

**Prerequisite:** CHM 7200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CHM 8420 X-Ray Crystallography Cr. 3**

Theoretical and practical aspects of modern x-ray crystallography. Training and practice in determination of crystal structure. Offered Intermittently.

**Prerequisite:** CHM 7010 with a minimum grade of C or CHM 7240 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CHM 8490 Advanced Topics in Physical Chemistry Cr. 1-3**

The following topics offered in different semesters: chemistry of the solid state; electron spin resonance; lasers and nonlinear spectroscopy; molecular dynamics; molecular quantum mechanics; particle and photon scattering; photophysics and photochemistry; radiation and nuclear chemistry; theory of gas phase kinetics. Offered Intermittently.

**Prerequisite:** CHM 7410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CHM 8690 Advanced Topics in Biochemistry Cr. 1-3**

Topics offered in different semesters: applications of spectroscopy to biochemical systems; chemical carcinogenesis; DNA repair; enzyme chemistry; experimental methods in molecular biology; hormone biochemistry; mechanisms of oxygen metabolism; membrane chemistry. Offered Intermittently.

**Prerequisite:** CHM 7410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CHM 8700 Research in Chemistry Cr. 1-16**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 40 Credits**

**CHM 8800 Seminar in Analytical Chemistry Cr. 1**

Required of all graduate students in analytical chemistry. Weekly meetings of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**CHM 8810 Seminar in Organic Chemistry Cr. 1**

Required of all graduate students in organic chemistry. Weekly meetings of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**CHM 8820 Seminar in Inorganic Chemistry Cr. 1**

Required of all graduate students in inorganic chemistry. Weekly meeting of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**CHM 8830 Seminar in Physical Chemistry Cr. 1**

Required of all graduate students in physical chemistry. Weekly meetings of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and enters into the discussion that follows. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**CHM 8840 Seminar in Biochemistry Cr. 1**

Required of all graduate students in biochemistry. Weekly meetings of staff, invited guests, and qualified students to study recent developments. Each seminar member presents papers and participates in discussions. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Chemistry; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy or Master of Science degrees.

**Repeatable for 4 Credits**

**CHM 8850 Frontiers in Chemistry Cr. 1**

Fields of fundamental chemistry now under investigation, presented by invited specialists actively engaged in research. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**CHM 8888 Survey of Research at the Chemistry Biology Interface Cr. 3**

The Chemistry Biology Interface course will teach students how to apply chemical approaches to study complete biological processes. It will commence with a basic overview of the biochemistry of biomolecules. Next, complex biological processes related to various diseases will be highlighted by introducing cell biology, model cells and organisms, and disease mechanisms. Finally, the course will highlight contemporary examples of how chemical methods are used to answer complex biological questions to show the value and innovation available by taking a multidisciplinary approach. The focus will be on development of skill sets that are applicable for research at the chemistry biology interface, rigor and transparency in data collection and analysis, and identification of cross-disciplinary research at Wayne State. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 8888, PHC 8888, PSC 8888, PSL 8888

**CHM 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**CHM 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CHM 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 998.99 Credits**

**CHM 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CHM 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 998.99 Credits**

**CHM 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CHM 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 998.99 Credits**

**CHM 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CHM 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 998.99 Credits**

**CHM 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 998.99 Credits**

## CLA - Classics

**CLA 1010 Classical Civilization Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Survey of the culture and civilization of Ancient Greece and Rome, in particular those aspects that laid the political, social, and cultural framework of the modern world. Offered Every Term.

**CLA 1230 Word Origins: English Words from Greek and Latin Cr. 3-4**

Vocabulary-building course designed to enlarge English vocabulary and increase understanding and spelling proficiency through a study of Greek and Latin roots of English words; aspects of interpreting and remembering legal, medical, and scientific vocabularies included. Offered Intermittently.

**CLA 1240 Etymology of Medical Terms Cr. 2**

The goal of this course is to help students master the language and vocabulary of modern science and medicine, most of which is derived from Latin and Ancient Greek. Offered Winter.

**CLA 2000 Greek Mythology Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only)

Typical myths related to religion, custom, ethics, philosophy, art, literature. Offered Every Term.

**CLA 2200 Introduction to Greek Tragedy Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Dramatic and literary qualities of representative plays of Aeschylus, Sophocles and Euripides. The origin and development of Greek tragedy related to the enduring quality and contemporary relevance of these dramas. Offered Fall.

**CLA 2300 Ancient Comedy Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Dramatic and literary qualities of representative plays of Aristophanes, Menander, Plautus and Terence. Origins and development of Greek Comedy related to the enduring quality and contemporary relevance of these dramas and their influence on later literature. Offered Winter.

**CLA 3050 Cleopatra Cr. 3**

Cleopatra as a figure of history and of myth, using sources ranging from ancient texts to contemporary websites, literature, history, art and film. Use of methodologies that classicists employ to focus on this single aspect of the ancient world; study of a historical problem that is plagued with biases. Offered Intermittently.

**CLA 3060 Medea in African American Literature Cr. 3**

Ancient sources about Medea; her presence in work of four African American authors: W.E.B. DuBois, Countee Cullen, Toni Morrison, and Percival Everett. Offered Intermittently.

**CLA 3150 Athens and the Ancient Greek World Cr. 3-4**

Cultural history of ancient Greece from the time of the first Olympic games (776 BCE) to the reign of Alexander the Great and the advent of the Hellenistic kingdoms (336 BCE); focus on the greatest of the Greek city-states, Athens. Offered Every Other Year.

**CLA 3350 Plutarch's Lives of the Noble Greeks and Romans Cr. 3**

Structured reading of one of the formative works in the Western canon, which has had lasting influence on biography as a genre and upon individuals such as William Shakespeare, Jean-Jacques Rousseau, Ralph Waldo Emerson, William Wordsworth, George Bernard Shaw, Harry Truman, Robert Lowell, Barbara Chase-Riboud, and many others. Offered Intermittently.

**CLA 3530 The World of Early Christianity Cr. 3**

A historical survey of the cultural, social, and literary world of early Christianity. Offered Every Other Year.

**Equivalent:** GKM 3530

**CLA 3590 Byzantine Civilization Cr. 3**

**Satisfies General Education Requirement:** Historical Studies, Social Inquiry

Survey of Byzantine culture, religion, society, and literature from late Antiquity to 1453, through secondary and primary sources in translation. Offered Yearly.

**Equivalent:** GKM 3590

**CLA 3700 The Golden Age of Rome Cr. 3-4**

Interdisciplinary approach to the most important period of Roman history: the beginning of The Roman Empire under Augustus; history, politics, literature, art. Offered Every Other Year.

**CLA 3720 Greek Identity from Antiquity to Modernity Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Historical Studies

Explores what it meant to be Greek from Archaic Greece to the modern era. Offered Yearly.

**Equivalent:** GKM 3720

**CLA 3800 Survey of Greek Literature Cr. 3-4**

Representative sampling of important Greek literary texts in English translation. Offered Every Other Year.

**CLA 3825 Survey of Latin Literature Cr. 3-4**

Representative sampling of important Latin literary texts in English translation. Offered Every Other Year.

**CLA 3999 Further Studies in Mythology Cr. 3**

A more in-depth study of mythology with special reference to particular classical myths or theories. Offered Intermittently.

**Prerequisites:** CLA 2000 with a minimum grade of D-

**CLA 4998 Honor's Thesis Cr. 3**

Completion of an extended examination of a topic or research question in Classics, under the direction of one or more members of the departmental faculty. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Classics Honors.

**CLA 5050 Cleopatra Cr. 3**

Cleopatra as a figure of history and of myth, using sources ranging from ancient texts to contemporary websites, literature, history, art and film. Use of methodologies that classicists employ to focus on this single aspect of the ancient world; study of a historical problem that is plagued with biases. Offered Intermittently.

**CLA 5150 Athens and the Ancient Greek World Cr. 3-4**

Cultural history of ancient Greece from the time of the first Olympic games (776 BCE) to the reign of Alexander the Great and the advent of the Hellenistic kingdoms (336 BCE); focus on the greatest of the Greek city-states, Athens. Offered Every Other Year.

**CLA 5200 Special Studies Cr. 1-4**

In-depth study of some aspect of Greek and Roman civilization. Topics may be drawn from the fields of literature, archaeology, art and history, and will be announced in Schedule of Classes. All readings in English. Offered Intermittently.

**Repeatable for 8 Credits**

**CLA 5350 Plutarch's Lives of the Noble Greeks and Romans Cr. 3**

Structured reading of one of the formative works in the Western canon, which has had lasting influence on biography as a genre and upon individuals such as William Shakespeare, Jean-Jacques Rousseau, Ralph Waldo Emerson, William Wordsworth, George Bernard Shaw, Harry Truman, Robert Lowell, Barbara Chase-Riboud, and many others. Offered Intermittently.

**CLA 5530 The World of Early Christianity Cr. 3**

A historical survey of the cultural, social, and literary world of early Christianity. Offered Every Other Year.

**Equivalent:** GKM 5530

**CLA 5590 Byzantine Civilization Cr. 3**

Survey of Byzantine culture, religion, society, and literature from late Antiquity to 1453, through secondary and primary sources in translation. Offered Yearly.

**Equivalent:** GKM 5590

**CLA 5700 The Golden Age of Rome Cr. 3-4**

Interdisciplinary approach to the most important period of Roman history: the beginning of The Roman Empire under Augustus; history, politics, literature, art. Offered Every Other Year.

**CLA 5720 Greek Identity from Antiquity to Modernity Cr. 3**

**Satisfies General Education Requirement:** Historical Studies

Explores what it meant to be Greek from Archaic Greece to the modern era. Offered Yearly.

**Equivalent:** GKM 5720

**CLA 5800 Survey of Greek Literature Cr. 3-4**

Representative sampling of important Greek literary texts in English translation. Offered Every Other Year.

**CLA 5825 Survey of Latin Literature Cr. 3-4**

Representative sampling of important Latin literary texts in English translation. Offered Every Other Year.

**CLA 5990 Directed Study Cr. 1-4**

Directed independent research in depth on a topic or author not treated in the regular classics offerings, culminating in a course paper. Offered Every Term.

**Repeatable for 8 Credits**

**CLA 5993 Writing Intensive Course in Classical Civilization Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Disciplined writing assignments under the direction of a faculty member. Must be selected in conjunction with a designated corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Grade in CLA 5993 is independent of grade in corequisite course. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CLA 6260 Further Studies in Mythology Cr. 3**

An in-depth study of mythology with special reference to particular classical myths or theories of myth. Offered Intermittently.

**Prerequisites:** CLA 2000 with a minimum grade of D-

**Repeatable for 6 Credits**

**CLA 7100 Introduction to Translation Studies Cr. 3**

Introduction to Translation Studies presents the essential theories as tools to deal with the significant practical problems and issues that may confront the practitioner in specialized translation. The class will focus on the following points: 1) acquisition of the basics of translation theory in order to facilitate the comprehension of translation's multidisciplinary processes and be aware of the variety of theoretical approaches, 2) the study and evaluation of primary methods of research to enhance future research and practices, 3) the acquisition of necessary metalanguage, which allows the textual analysis of the translation process, the solution driven mind of a translator, the approach to tackle recurring translation problems, and the evaluation of translated texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ARB 7100, FRE 7100, GER 7110, ITA 7100

## CMT - Construction Management

**CMT 2200 Soils and Foundations Cr. 3**

It is essential for construction manager to understand basic soil engineering properties, classification system, phase diagram, relationship between density and moisture content, and how it determines foundation design, and real-world application in the construction industry. Application of International Building Code in foundation design. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Construction Management.

**CMT 3000 Construction Estimating and Bidding Cr. 3**

Fundamental cost estimating principles, processes and methods used in residential and commercial construction. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 3010 Introduction to Construction Management Cr. 3**

Overview of construction industry; processes involved in construction projects from conception to final delivery. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 3020 Residential and Commercial Land Development and Design Cr. 3**

Role and responsibilities of a developer; financing strategies and new trends in lending; forming an effective partnership. Technical processes: from undeveloped land to surveying, conceptual drawing, site planning process, engineering and design, permits, and construction. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 3030 Construction Safety Management Cr. 3**

Construction safety and health management as applicable to contractors, owners, and designers. Construction injury and fatality statistics; humanitarian, legal and economic justification for safety; accident causation and control theories; OSHA standards and safe construction procedures. Safety policy, project safety rules, communications network, accident investigation and record keeping, worker orientation and training, and safety program evaluation and audits. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 3040 Building Codes Cr. 3**

Requirements by regulatory agencies pertaining to the construction industry; current International Building Code and other regulations; emphasis on Michigan applications. Offered Winter.

**Prerequisites:** CMT 21X0 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 3050 Construction Accounting and Financial Management Cr. 3**

Successful management of finances of the construction project and companies. Accounting systems, financial statements, overhead and profits, cash flows for construction projects and companies, project financing, and financial decision making. Offered Fall.

**Prerequisites:** ECO 2020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 3070 Introduction to Green Construction Cr. 3**

Sustainable or green-building design and construction: efficient use of resources to create healthier and more energy-efficient buildings. Motivations for green construction projects, technical aspects of their design, obstacles, future directions. Knowledge and capabilities to project-manage a green building. Offered Fall.

**Prerequisites:** PHY 2130 with a minimum grade of C and PHY 2131 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 3080 Advanced Computers in Construction Cr. 3**

Advanced applications of MS Excel software in estimating and financial management of construction projects; making effective project presentations using MS PowerPoint. Field applications of computers; use of PDAs and handheld devices in data acquisition and management. Use of REVIT software in Building Information Modeling (BIM). Offered Winter.

**Prerequisites:** ET 2140 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 4050 Construction Methods Cr. 3**

Overview of construction practices in industry; processes and equipment involved in construction projects from conception to final delivery. Offered Winter.

**Prerequisites:** MAT 1800 with a minimum grade of C- or CMT 2200 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 4140 Project Administration Cr. 3**

Overview of construction project and contract administration and management. Use of Excel, Expedition, and Prolog software. Offered Winter.

**Prerequisites:** CMT 2X00 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 4200 Senior Project Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Capstone project; senior students work in teams; application of skills, knowledge, techniques and concepts. Satisfies the University General Education Writing Intensive Course in the Major requirement. Offered Winter.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Engineering.

**CMT 5030 Facilities and Management Principles Cr. 3**

An introduction to Facilities Management (FM) with an overview of the many facets of FM including the Facility lifecycle, strategic, master, and annual planning cycles. Including how these cycles are used in the management of finances, spaces, real property, sustainability, projects, security, emergencies, operations, and maintenance. Offered Fall.

**Prerequisites:** CMT 3010 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**CMT 5060 Planning and Scheduling Cr. 3**

Provides an overview of the principles needed to successfully manage the time schedule of construction projects using Primavera P5.

There principles are attributed to many processes and techniques, including, Critical path Method (CPM) Technique, Time Scheduling and updating, Resource Management (Allocation, Leveling and Control), Cost Management, and Reporting. Offered Fall.

**Prerequisites:** CMT 3010 with a minimum grade of C-

**CMT 5070 Mechanical and Electrical Systems in Buildings Cr. 3**

Principles and applications of basic mechanical and electrical systems; design examples; emerging technology and environmental issues; essential engineering calculations and data. Offered Winter.

**Prerequisites:** MAT 1800 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**CMT 5080 Construction Management Law Cr. 3**

The objectives of this course are to introduce students to the legal responsibilities, risks, and rights inherent in the professional practice of construction management. Offered Winter.

**CMT 7020 Construction Safety Management Cr. 3**

This course covers building the safety culture, establishing accountability for safety, working with contractors, hazard prevention and control, and the steps to identify OSHA requirements. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CMT 7030 Building Information Modeling Cr. 3**

This course will focus on improving skills in Revit and Navisworks while using advanced knowledge of the construction industry to manipulate models to create deliverables. Students will focus on completing detailed quantitative takeoffs for several building services including structural, mechanical, electrical, and plumbing. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CMT 7040 Lean Construction Management Cr. 3**

Students will be introduced to LEAN-SIX SIGMA (LSS) philosophy, tools, and practices as they relate to real world issues in the construction industry. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CMT 7050 VR Technologies in Construction Management Cr. 3**

Students will get hands-on experience with VR technology before spending time researching different products. This research will give students an understanding of the limitations of the software and which companies are proving to have an edge on the competition. Offered Yearly.

**Prerequisite:** CMT 7030 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.



**CMT 7060 Risk Management in Construction Cr. 3**

Students will learn topics related to project risk management, including project risks and opportunities, plan risk analysis, implement risk responses and construction risk register templates and tools. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CMT 7070 Construction Cost Estimating Cr. 3**

This course provides an in-depth analysis of cost estimates; budget estimates; preconstruction services estimates; subcontractor work estimates; and bid preparation. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

## COM - Communication

**COM 1010 Oral Communication: Basic Speech Cr. 3**

**Satisfies General Education Requirement:** Oral Communication Competency

Beginning course emphasizing fundamentals of speech preparation. Development of poise and confidence in speaking. Offered Every Term.

**COM 1500 Survey of Mass Communication Cr. 3**

Introductory course in understanding communication theory and effects and the communication industry in the United States. Offered Every Term.

**COM 1600 Introduction to Audio-Television-Film Production Cr. 3**

Foundational course in production principles, techniques, and processes and current industry practices. Through in-class exercises and out-of-class projects, students gain hands-on experience with camera, lighting, sound, and non-linear editing equipment and software in the creation of digital film, video, and audio content. Offered Every Term.

**Fees:** \$90

**COM 1610 Fundamentals of New Media Production Cr. 3**

Critical introduction to the emerging landscape of producing original digital content for information and communication technology. Students will develop a critical perspective and the skills needed to engage in new media culture. Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**COM 1700 Media Literacy Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry

Explores the goals and methods of various media industries, identify the influence media has on us, understand benefits and potential negative consequences of media, while identifying specific techniques for becoming media literate. Offered Every Term.

**COM 2000 Introduction to Communication Studies Cr. 3**

Introduction to the discipline of communication studies. Survey of theory, research, and practice. Offered Yearly.

**COM 2010 Introduction to Film Cr. 4**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Examination of film techniques and basic methods of film analysis. Offered Every Term.

**Fees:** \$15

**Equivalent:** ENG 2450

**COM 2020 History of Film Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Critical study of the motion picture as a modern visual art; screening and analysis of representative fiction films to illustrate historical periods and genres. Offered Every Term.

**Fees:** \$15

**COM 2030 Journalistic Grammar and Style Cr. 3**

Grammar use in journalism; Associated Press Style Book. Offered Every Term.

**COM 2100 News Reporting Cr. 3**

Basic news reporting: gathering the facts and writing them well. Journalism skills course. Offered Every Term.

**Prerequisites:** (COM 1500 with a minimum grade of C or COM 1700 with a minimum grade of C) and COM 2030 with a minimum grade of C

**Fees:** \$30

**COM 2110 Argumentation and Debate Cr. 3**

**Satisfies General Education Requirement:** Critical Thinking Competency  
Logical and legal foundation of the argumentation process; practical experience in analysis, reasoning, case-building, evaluation of evidence, refutation and cross-examination. Offered Every Term.

**COM 2160 Campaigns and Social Movements Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Critical discussion of the social foundations and values underlying human persuasion. Analysis of persuasive strategies and techniques used in contemporary society: political campaigns, social movements, advertising and consumerism in the U.S. Offered Every Term.

**COM 2170 Persuasive Speaking Cr. 3**

Advanced public speaking; emphasis on persuasive speeches. Application of social psychology to audience analysis, to speech construction and presentation, and to critical analysis of persuasive public discourse. Offered Every Term.

**Prerequisites:** COM 1010 with a minimum grade of C or Oral Communication P=100/F=000 with a test score minimum of 100

**COM 2200 Interpersonal Communication Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry  
Introduction to theory and research on interpersonal communication; analysis of everyday communication situations. Offered Yearly.

**COM 2210 Media Writing and Storytelling Cr. 3**

Application of writing principles to various forms of copy; continuity, commercials, public service announcements, features, documentary, drama. Offered Every Term.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**COM 2230 Broadcast News Writing and Digital Editing Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Theory and practice in broadcast news-writing, reporting, performing and editing. Writing Intensive course for broadcasting sequence in Journalism major. Offered Fall, Winter.

**Prerequisites:** COM 1500 with a minimum grade of C or COM 1700 with a minimum grade of C

**Fees:** \$50

**COM 2240 Forensics Practicum Cr. 1-2**

Training and participation in debate and contest speaking. Offered Every Term.

**Repeatable for 6 Credits**

**COM 2250 South End Workshop Cr. 3**

Students work in various editing, reporting, and photographic positions at student newspaper. Offered Every Term.

**Prerequisites:** COM 2100 with a minimum grade of C

**COM 2260 Digital Writing and Research Methods Cr. 3**

This course prepares students to participate intelligently and critically in the production and consumption of digital media. The course emphasizes fundamental writing and research skills. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**COM 2280 Digital Photojournalism Cr. 3**

Theory and practical application of photojournalism. Emphasis on journalistic visual storytelling, use of digital camera equipment, theory of photography, and presentation through social media. Students must have access to either a smart phone with camera or a 35mm DSLR or mirrorless camera with manual capabilities. Offered Fall, Winter.

**Fees:** \$50

**COM 2290 Fundamentals of New Media Communication Cr. 3**

Interdisciplinary introduction to the study of new media by way of an investigation of both theories and applications of emerging forms of communication. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**COM 2300 Intercultural Communication Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
The purpose of this course is to engage students in an in-depth exploration of culture within and among different social groups, from a communicative perspective. Discussions and readings will include communication as an element of culture, key concepts and terms that ground our understandings of cross-cultural interactions, a history of the discipline and relevant theories and research in this area. Offered Yearly.

**COM 2310 Introduction to Web Design Cr. 3**

Introduces students to the current methods and procedures utilized to effectively design and maintain web pages and websites using various CMS (content management system) platforms. Offered Fall.

**Fees:** \$35

**COM 3010 Media Analysis and Criticism Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Through a focus on the analysis of media texts (from movies to memes and everything in between and beyond) students are introduced to the techniques and methods necessary for the comprehension and practice of media criticism. By thinking and writing critically, evaluation of media texts will draw from aspects of both reception and production practices; case studies will be made of a broad-based spectrum of styles, genres, and periods. Offered Every Term.

**Prerequisites:** COM 1500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students in the Department of Communication.

**Fees:** \$10

**COM 3100 Public Affairs Reporting Cr. 3**

Advanced news reporting, focusing on governmental stories. Offered Fall, Winter.

**Prerequisites:** COM 2100 with a minimum grade of C

**Fees:** \$30

**COM 3150 Science Communication Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
Students will have an opportunity to become familiar with the theory, research, and practice of science communication. They will develop an understanding of quantitative research methods in science and engage with the meaning of both science and scientific practice, so that they may critique and help shape broader public interpretation of socially relevant scientific topics (e.g., vaccines, evolution, climate change). Various channels to communicate science with diverse audiences will be examined and students are encouraged to examine how multiple media shape scientific understanding in different ways. Offered Every Other Winter.

**COM 3170 Fundamentals of Public Relations Cr. 3**

Historical background of the profession of public relations; communication variables in public relations; emphasis on presentational techniques, publicity preparation and development of special events. Offered Fall, Spring/Summer.

**Prerequisites:** COM 1010 with a minimum grade of C, COM 2170 with a minimum grade of C, or Oral Communication P=100/F=000 with a test score minimum of 100

**COM 3210 News Editing Cr. 3**

Copy editing, headline writing, AP style, online and print news presentation, preparation for different news platforms. Journalism skills course. Offered Every Term.

**Prerequisites:** COM 2100 with a minimum grade of C

**Fees:** \$15

**COM 3230 The African-American Film Experience Cr. 4**

Historical and contemporary portrayals of African American people in narrative and documentary film. Emphasis on filmic approaches to race relations, cinematic elaboration of racial stereotypes, and legitimation functions of film. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** AFS 3200

**COM 3240 Queer Film and Media Cr. 3**

Queer voices have been an integral part of cinema since its inception in the late nineteenth century. Students in this course will study the intersections of queer lives with the industry and artistry of film and media. To do this, we will revisit film history with an eye for the queer experience, identify landmark works and key pioneers of queer cinema, consider how queer representations have shifted across decades, and analyze the integral themes and styles of queer media. Offered Yearly.

**Equivalent:** GSW 3240

**COM 3250 Introduction to Organizational Communication Cr. 3**

Introduction to major theories and principles used to guide the effective practice of communication within organizations. Offered Fall, Winter.

**COM 3300 Business and Professional Presentations Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Review and practice of various oral communication forms used in modern organizations. Topics include persuasive speaking, informative speaking, speech writing, multi-media presentations and business and report writing. Offered Every Term.

**Prerequisites:** (COM 1010 with a minimum grade of C, ENG 3060 with a minimum grade of C, or Oral Communication P=100/F=000 with a test score minimum of 100) and (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C)

**COM 3380 Editing and Field Production Cr. 3**

Theoretical, technical and creative storytelling processes of editing; development of technical competency in skills required for location production (camera, lighting, and sound). Offered Every Term.

**Prerequisites:** COM 1600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Film, Film Honors, Film Studies, Journalism, Journalism Honors, Media Arts and Studies or Media Arts and Studies Honors.

**Fees:** \$130

**COM 3400 Theories of Communication Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Exploration of the role of theory in describing, explaining and predicting human communication behavior in face-to-face and mediated contexts. Offered Every Term.

**COM 3990 Directed Study Cr. 1-4**

Offered Every Term.

**Repeatable for 4 Credits**

**COM 4041 Rhetoric and the Body Cr. 3**

Humanistic analysis, research, and theory in how rhetoric of/about the human body intersects with broader social concerns (e.g., consumerism, gender, disease and health, and race). Offered Every Other Year.

**COM 4100 Feature Writing Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Advanced news reporting, focusing on feature writing. Offered Fall, Winter.

**Prerequisites:** COM 2100 with a minimum grade of C

**Fees:** \$30

**COM 4110 Studies of Legal Argument Cr. 3**

Uses of legal argument in a variety of fields and contexts. Different methods of studying argument will be examined. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**COM 4130 Communication Ethics Cr. 3**

Issues of responsible communication in a variety of contexts including public relations, organizational, and interpersonal communication. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**COM 4140 Popular and Celebrity Culture Cr. 3**

Increasing significance of pop and celebrity culture in shaping cultural and political affairs. Modes of production and consumption of pop culture; understanding pop culture and its effects. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**COM 4150 Communication and Conflict Cr. 3**

Examination of the dynamics and processes of conflict across contexts with a focus on communicative theories and practices. Focus on developing and applying assessment and management knowledge and skills to real-world situations. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**COM 4170 Public Relations Writing Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Writing for public relations purposes: backgrounders, fact sheets, press releases; brochures and newsletters. Offered Fall, Winter.

**Prerequisites:** COM 2030 with a minimum grade of C and COM 3170 with a minimum grade of C

**COM 4190 Rhetorical Criticism Cr. 3**

An introduction to various methods of rhetorical criticism through analysis of texts and artifacts in terms of persuasion and adaptation to audiences. Offered Fall.

**Prerequisites:** COM 2000 with a minimum grade of C or COM 3400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**COM 4200 Nonverbal Communication Cr. 3**

Channels and functions of nonverbal communication; contexts include: gender, culture, adult-infant interaction, therapy. Methods of study. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**COM 4210 Research Methods in Communication Cr. 3**

Quantitative and qualitative research methods designed to advance knowledge about human communication across applied settings and diverse contexts. Offered Every Term.

**Prerequisites:** COM 1500 with a minimum grade of C or COM 2000 with a minimum grade of C

**Repeatable for 9 Credits**

**COM 4240 African Americans in Television Cr. 4**

Historical overview of African Americans in radio and television with emphasis on three areas of study: news and documentary; entertainment and advertising; and ownership, employment and access. Offered Yearly.

**Equivalent:** AFS 4240

**COM 4250 Reporting Race, Gender, and Culture Cr. 3**

Issues of gender, culture and race in media coverage with emphasis on neutral writing and some content analysis. Preparation for students to report on this content with sensitivity and accuracy. Offered Fall, Winter.

**Prerequisites:** COM 2100 with a minimum grade of C

**COM 4270 Group Communication Cr. 3**

Theory, research, and practice in group processes and problem-solving in small groups within professional contexts. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**COM 4310 Audio Production Cr. 3**

Theory and practice in sound production techniques and experimentation with creative audio production. Offered Every Term.

**Prerequisites:** COM 1600 with a minimum grade of C and (COM 2210 with a minimum grade of C or COM 2230 with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students in the Department of Communication.

**Fees:** \$90

**COM 4410 Television Production Cr. 4**

Theory and practical application of techniques used in television production; use of graphic materials, design and staging concepts, lighting techniques and studio operation; the role of the television producer-director. Offered Every Term.

**Prerequisites:** COM 1600 with a minimum grade of C and (COM 2210 with a minimum grade of C or COM 2230 with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students in the Department of Communication.

**Fees:** \$90

**COM 4500 Leadership Communication Cr. 3**

Theory and application of leadership processes in for-profit and nonprofit organizations. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**COM 4510 Immersive Media Production Cr. 3**

Foundations of storytelling through the use of immersive technology. This course incorporates techniques and project development in 360/VR still photography, ambisonic sound and 360/VR video production.

Emphasis is also placed on group moderating, immersive storytelling, concept development, historical and theoretical analysis of simulation technologies. Offered Winter.

**Prerequisites:** COM 1600 with a minimum grade of C and (COM 2210 with a minimum grade of C or COM 2230 with a minimum grade of C)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**COM 4560 Telecommunications Policy: A Political Economy Approach Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Introduction to government and corporate policies that govern telecommunication networks. Critical approaches to the study of emerging legal and policy issues pertaining to the dynamic and evolving communication networks and technologies, including surveillance practices and privacy issues. Offered Winter.

**Prerequisites:** COM 1500 with a minimum grade of C or COM 1700 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**COM 4680 WAYN Radio Cr. 2**

Participation in WAYN on-line radio. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**COM 4990 Directed Study Cr. 1-3**

Supervised individual research. Offered Every Term.

**Prerequisite:** COM 2100 with a minimum grade of C

**Repeatable for 4 Credits**

**COM 4996 Senior Honors Thesis Cr. 3**

Overview of theory and research in communication; closely supervised research project that results in a paper of approximately twenty pages. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Senior.

**COM 5010 History of Communication Technologies Cr. 3**

Traces the historical development of communication technologies, industry players and government policies, and assesses impact of the technologies in their historical context. Offered Yearly.

**Prerequisites:** COM 1500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Communication Studies, Communication, Film, Film Honors, Journalism, Journalism Honors, Media Arts and Studies, Media Arts and Studies Honors, Public Relations, Public Relations Honors or Radio and Television.

**COM 5020 Studies in Film History Cr. 3**

Analysis of the development of a specific film genre, a director, or other historical aspect of the motion picture. Topics to be announced in Schedule of Classes. Offered Yearly.

**Prerequisites:** COM 2010 with a minimum grade of C or ENG 2450 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Communication Studies, Communication, Film, Film Honors, Journalism, Journalism Honors, Media Arts and Studies, Media Arts and Studies Honors, Public Relations, Public Relations Honors or Radio and Television.

**Fees:** \$20

**Repeatable for 12 Credits**

**COM 5050 Special Topics Cr. 3**

Selected topics in communication to be announced in the Schedule of Classes. No more than six credits may be elected in this special topics course in any graduate degree program Offered Intermittently.

**Repeatable for 9 Credits**

**COM 5060 Documentary and Non-Fiction Film and Television Cr. 4**

Study of the history and contemporary global landscape documentary film, video and digital media. Through screenings, readings and discussions, the course explores approaches to the analysis of documentary form and content including cinematic modes, social impact, ethical considerations and the processes of production, financing and distribution. Offered Yearly.

**Prerequisites:** COM 2010 with a minimum grade of C or COM 2450 with a minimum grade of C

**Fees:** \$20

**COM 5070 Culture, Communication, and Media Cr. 3**

The purpose of this course is to engage students in an in-depth exploration of culture, communication, and media technologies and practices in everyday life. In essence, we will study how understandings of culture shape the world around us, even as it is shaped and mediated by everyday communication, often taken for granted. The course challenges students to rethink everyday representations of culture and social groups, unpack how power relations permeate cultural contexts, and identify alternative frames and openings through emerging media technologies. Offered Every Other Fall.

**Restriction(s):** Enrollment limited to students with a class of Senior.

**COM 5080 History of Journalism and Mass Media Cr. 3**

A historical examination of the changing role of the media professional and forms of media and communication as they have developed in relation to particular social, political, economic, and technological conditions. Offered Fall, Winter.

**COM 5120 Public Address Cr. 3**

Landmark moments of public address. What constitutes public address; relevance of public address studies. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**COM 5130 Communication and Social Marketing Cr. 3**

Principles of social marketing; student-driven group project. Offered Fall, Spring/Summer.

**Prerequisites:** COM 4210 with a minimum grade of C

**COM 5140 Public Relations and Social Media Cr. 3**

Examines social media strategies and how they can be constructed, implemented and evaluated in the context of public relations planning. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** COM 3170 with a minimum grade of C and COM 4210 with a minimum grade of C

**COM 5160 Public Relations Campaigns and Issues Management Cr. 3**

Capstone course for public relations majors. Management functions of public campaigns: developing objectives, strategic planning, issues management, budgeting. Blends theoretical concepts with their professional and practical applications; emphasis on public relations planning and evaluation. Offered for undergraduate credit only. Offered Winter.

**Prerequisite:** COM 4170 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Senior.

**COM 5190 Special Topics in Communication Studies Cr. 3**

Advanced study of theory and research in communication studies. Topics to be announced in schedule of classes. Offered Winter.

**Prerequisite:** COM 2000 with a minimum grade of C or COM 3400 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students in the Department of Communication.

**Repeatable for 6 Credits**

**COM 5200 Special Topics in Advanced Reporting Cr. 3**

Special areas of interest, such as sports writing, business writing, columns and editorials. Offered Yearly.

**Prerequisites:** COM 2100 with a minimum grade of C-

**Repeatable for 9 Credits**

**COM 5250 Professional Issues in Journalism and Mass Media Cr. 3**

Capstone course for journalism majors; must be taken in the last year of study. This course explores the issues and skill-set required to successfully enter the news media/media career field – either on staff or on your own. Media organizations and entrepreneurial opportunities are covered. Offered Fall, Winter.

**Prerequisite:** COM 2230 with a minimum grade of C or COM 4100 with a minimum grade of C



**COM 5270 Screenwriting Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency Principles and techniques of writing for motion pictures. Analysis and study of professionally written scripts. Exercises in writing dramatic and non-fiction screenplays. This course fulfills the Writing Intensive Requirement for the Film major. Offered Every Term.

**Prerequisites:** COM 2210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students in the Department of Communication.

**Fees:** \$10

**Repeatable for 8 Credits**

**COM 5300 Layout and Design Cr. 3**

Practical skills course in publishing newsletters, magazines, newspapers and books; emphasis on new computer technology, desktop publishing; business aspects of publishing, including printing, promotion and marketing; skills in use of personal computer for publishing. Offered Intermittently.

**Fees:** \$30

**COM 5310 Investigative Reporting Cr. 3**

Advanced reporting techniques involving use of Freedom of Information Act and computer-assisted data base searches; accessing public records. Offered Intermittently.

**Prerequisites:** COM 2100 with a minimum grade of C

**COM 5320 Health Communication Cr. 3**

Communication demands of health care and health promotion; current communication issues and problems in modern health care systems; identification of communication strategies for health care consumers and providers. Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisites:** COM 2000 with a minimum grade of C or COM 3400 with a minimum grade of C

**COM 5330 Rhetoric of Visual Culture Cr. 3**

Influence that vision and visual texts have in our culture. Critical examination of such texts, including photography, museums, monuments, the fashion industry, tattoos and body marking. Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisites:** COM 2000 with a minimum grade of C or COM 3400 with a minimum grade of C

**COM 5350 Media Arts Production Cr. 3**

Key components of production for electronic media (field, audio, and television production). Production techniques, aesthetic understanding, directing skills. No credit after COM 5380 or COM 5400. Offered for graduate credit only. Offered Fall.

**Fees:** \$100

**COM 5360 Gender and Communication Cr. 3**

Analysis of gender communication issues within interpersonal, group, organizational, intercultural, public, and mass mediated contexts. Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisite:** COM 2000 with a minimum grade of C

**COM 5380 Video Field Production and Editing Cr. 3**

Theory and practical application of digital film/video location production and post-production techniques. Non-linear editing and post-production software as used in creative development of original content. Offered Winter.

**Prerequisites:** COM 5350 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Communication.

**Fees:** \$100

**COM 5381 TV News Reporting and Digital Editing Cr. 3**

Theory and practical application of aesthetics and journalistic values of TV news and feature storytelling. Emphasis on planning, location video and sound protection, editing, interviewing, writing skills, on-camera presentation. Offered Fall, Winter.

**Prerequisite:** COM 2230 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Journalism, Journalism Honors, Media Arts and Studies or Media Arts and Studies Honors.

**Fees:** \$125

**COM 5390 Digital Animation Cr. 3**

Introduction to animation techniques, 2D to 2-1/2D to 3D; includes use of Adobe products such as After Effects. Discussion of alpha channels, masks, rotoscoping, layering, keyframe and behavioral-based animation. Offered Winter.

**Prerequisites:** COM 1600 with a minimum grade of C or COM 5350 with a minimum grade of C

**COM 5400 Techniques of Film and Video Production Cr. 4**

Capstone course option for majors in Media Arts and Studies; should be taken in last 21 credits of program. Experience with the preparation, shooting and editing of video projects in film-style production. Offered Fall, Winter.

**Prerequisite:** COM 3380 with a minimum grade of C or COM 5380 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students in the Department of Communication.

**Fees:** \$150

**COM 5410 Producer's Workshop Cr. 3**

Examination of the business, managerial, and creative considerations and process of producing media programming from conception through distribution. Offered Yearly.

**Prerequisites:** COM 3380 with a minimum grade of C, COM 3390 with a minimum grade of C, COM 5380 with a minimum grade of C, COM 5381 with a minimum grade of C, or AIN 3220 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Communication Studies, Communication, Film, Film Honors, Journalism, Journalism Honors, Media Arts and Studies, Media Arts and Studies Honors, Public Relations, Public Relations Honors or Radio and Television.

**Fees:** \$35

**COM 5420 Director's Workshop Cr. 3**

Organization and execution of the film and video director's tasks through production of a major creative project. Offered Yearly.

**Prerequisite:** COM 5400 with a minimum grade of C

**Fees:** \$125

**Repeatable for 6 Credits**

**COM 5440 Film, Cinematography and Lighting Cr. 4**

An immersion into the cinematic practices and applied theory of film and digital cinema including the art and technology of cinematography, lighting design, and non-linear post-production. Students will apply an understanding of exposure and color temperature control, workflow management, NLE systems and color grading to the creation of short cinematic works designed for their portfolios and for exhibition. Offered Every Other Year.

**Prerequisite:** COM 5400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Communication Studies, Communication, Film, Film Honors, Journalism, Journalism Honors, Media Arts and Studies, Media Arts and Studies Honors, Public Relations, Public Relations Honors or Radio and Television.

**Fees:** \$125

**COM 5460 Magazine Writing Cr. 3**

Advanced feature writing: preparation of magazine features. Students focus on limited number of in-depth articles. Research, structure and writing techniques to produce publishable magazine-length articles. Offered Yearly.

**Prerequisite:** COM 4100 with a minimum grade of C

**COM 5500 Journalism and New Media Cr. 3**

Theory and practical application of publishing journalistic works via new media. Emphasis on best practices and techniques of using social media for news coverage. Offered Fall, Winter.

**Prerequisite:** COM 2100 with a minimum grade of C

**Fees:** \$30

**COM 5510 Societal Effects of New Technologies Cr. 3**

Capstone course; must elect in last 21 credits prior to graduation.

Discusses the societal impact of traditional mass media and the evolving interactive technologies of computers and mobile networks as well as emerging technologies such as robotics. Offered Yearly.

**Prerequisite:** COM 1500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Communication, Journalism, Journalism Honors, Media Arts and Studies, Media Arts and Studies Honors or Radio and Television.

**COM 5520 International Communications Cr. 3**

Examination of the complex issues pertaining to international telecommunication, broadcasting and satellite systems within the broader political, economic and sociocultural contexts of globalization. Offered Yearly.

**COM 5540 Film Criticism and Theory Cr. 3**

Introduction to the major classical and contemporary theoretical and critical approaches to the study of film and screen arts, inclusive of Third Cinema theory, in a globalized, multi-screen media environment. Offered Fall.

**Prerequisites:** 2 of (COM 2010 with a minimum grade of C, COM 2020 with a minimum grade of C, COM 3010 with a minimum grade of C, COM 3230 with a minimum grade of C, AFS 3200 with a minimum grade of C, or COM 3400 with a minimum grade of C)

**COM 5610 Advanced TV Production Cr. 3**

Students work on producing live, recorded TV programs and work on a professional-style TV production crew. Positions include technical director, teleprompter operator, producers, audio, lighting, staging/set construction personnel, camera operators, editors. Offered Fall, Winter.

**Prerequisite:** COM 4410 with a minimum grade of C or COM 5381 with a minimum grade of C

**Fees:** \$135

**Repeatable for 6 Credits**

**COM 5710 Law and Ethics in Journalism and Mass Media Cr. 3**

Covers legal and ethical issues in Journalism and Mass Media. It is designed to help students in journalism, public relations, advertising, and other media professions understand the practical application of law and ethics in their working lives. Offered Fall, Winter.

**COM 5900 Senior Project in Communication Studies Cr. 3**

Combination of lectures and workshops to assist students in carrying out a service learning or individual research project. Offered for undergraduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Communication Studies or Communication Studies Honors.

**COM 5993 Writing Intensive Course Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a designated corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. No degree credit. Required for all Film Studies majors. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**COM 6050 New Media Practices Cr. 3**

Examination of principles of emerging communication practices – including mobile, social, AR, VR, MR, and AI – across personal, cultural, and institutional settings. Offered Fall.

**COM 6090 Digital Screen Media Cr. 3**

Foundational techniques of creating transmedia content. Students explore basic interactivity, and gain experience designing and implementing sites for multimedia platforms. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$85

**COM 6100 Speech Writing Cr. 3**

Preparation and presentation of speech manuscripts. Emphasis on style of writing, use of supporting materials and factors of interest. Special problems of ghost-writing considered. Offered Every Other Year.

**COM 6140 Public Relations Theory Cr. 3**

This course provides a foundational grounding in public relations theories and examines them in different communication contexts, including mediated, crisis, and international. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 6180 Principles of Health Communication Cr. 3**

Graduate survey of theory, research and practice in communication; emphasis on collaborative patient-provider interactions and health campaigns. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 6190 Internship Cr. 1-3**

On-the-job observations and work experience in business, service, social, governmental, and industrial organizations. Emphasis on journalism, public relations, and organizational communication. Offered Every Term.

**Repeatable for 6 Credits**

**COM 6220 Dispute Resolution and Communication Technology Cr. 3**

Conflict in online environments; development of Online Dispute Resolution (ODR). Hands-on work with state-of-the-art ODR technologies via several simulations. Offered Every Other Year.

**COM 6250 Organizational Communication Cr. 3**

Theoretical review of the structure process and function of communication within and between organizations. Analysis of current and emerging issues in the theory and research of organizational communication. Offered Fall.

**COM 6270 New Media Theory Cr. 3**

Exploration of a wide range of theoretical approaches central to the study of new media, including media ecology, computational approaches, cultural studies, media convergence, posthumanism, and ethical considerations. Offered Yearly.

**COM 6280 Reporting on Diversity Cr. 3**

Focus on journalistic writing with sensitivity on the language and framing used when reporting on race, ethnicity, culture, gender identity or gender expression. For students intending careers in fields that require writing that can reach diverse public audiences, such as news media, public relations, and strategic communications. Offered for graduate credit only. Offered Fall, Winter.

**COM 6310 Allesee Lectures in Media Cr. 1**

Through public lectures, screenings and discussion sessions, this course provides critical and analytical approaches to the study of work by leading artists, professionals and/or scholars in the fields of film, media arts, or broadcast journalism. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Unranked Grad, Junior or Senior; enrollment limited to students in the Fine, Performing & Comm. Arts.

**Repeatable for 3 Credits**

**COM 6350 Communication, Culture, and Conflict Cr. 3**

Overview of communication theory and practice as it relates to issues of culture, conflict and dispute resolution. Offered Fall.

**COM 6390 Documentary Storytelling I Cr. 3**

Research practices, production techniques and ethical considerations vital to documentary storytelling; camera, sound recording and digital workflow techniques employed in small-crew documentary production; interview and narrative construction techniques. Emphasis on the development of research, conceptualization, visualization, and preproduction skills required for documentary filmmaking. For graduate students, this is the first of a two-semester sequence in documentary filmmaking. Graduate students should plan to register for COM 7390 upon successful completion of this course. Offered Winter.

**Prerequisites:** COM 5060 with a minimum grade of C (may be taken concurrently) and (COM 3380 with a minimum grade of B+, COM 5380 with a minimum grade of B+, COM 5381 with a minimum grade of B+, or COM 6090 with a minimum grade of B+)

**Fees:** \$125

**COM 6410 Allesee Master Class Cr. 1-3**

The Allesee Master Class provides students the opportunity to work with leading artists, professionals, and/or scholars in the fields of film, media arts, or broadcast journalism develop and refine professional and creative skills in a production environment. Offered Yearly.

**Repeatable for 6 Credits**

**COM 6530 Audience Measurement and Survey Techniques Cr. 3**

Theory and application of quantitative and qualitative research techniques in surveying audiences for electronic media. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 6680 Directed Projects in Film and Media Cr. 1-3**

Advanced individual projects. Offered Every Term.

**Prerequisite:** COM 5400 with a minimum grade of C

**Repeatable for 3 Credits**

**COM 7000 Introduction to MA Studies in Communication Cr. 3**

The foundational course providing a comprehensive overview of the field of communication, including: key theories, themes, subdisciplines, and research methodologies commonly used within the discipline. Offered Fall.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7010 Special Topics Cr. 1-3**

Selected topics in communication to be announced in the Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment limited to Graduate level students.

**Repeatable for 9 Credits**

**COM 7040 Language and Power Cr. 3**

Ways in which language is used as a device of oppression and liberation. Offered Every Other Year.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7140 Public Relations Campaigns and Issues Management Cr. 3**

Management functions of public relations campaigns: developing objectives, strategic planning, issues management, budgeting. Blends theoretical concepts with their professional and practical applications; emphasis on prominent critical rhetorical approaches to public relations planning and evaluations. Offered Winter.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7150 Micro-level Organizational Communication Cr. 3**

Communicative processes, behaviors and relationships that affect individuals, dyads and small groups at the workplace. Topics covered include leadership, small group communication, mentorship, co-worker relationships, identity management, civility and workplace bullying. Offered Every Other Year.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7160 Crisis Communication Cr. 3**

Theoretical and case-study approach to communicative aspects of organizational crisis management. Topics include post-crisis response, crisis sensing, crisis planning. Offered Every Other Year.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7162 Risk Communication: Theoretical and Practical Approaches Cr. 3**

Introduces students to the theoretical approaches to risk communication. In addition, students will be introduced to research methods that may be used to conduct evaluation research on the impact of mediated risk communication. Offered Fall.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7165 Communication and Issue Management Cr. 3**

Theoretical and case study approach to management of public policy issues facing organizations. Topics include: public relations, issue monitoring, environmental uncertainty. Offered Every Other Year.

**Prerequisite:** COM 6250 with a minimum grade of C

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7170 Health and Risk Communication Cr. 3**

Theory and research in health and risk communication. Role of communication in hindering and promoting health under situations of health risk such as disasters and other public health emergencies. Offered Winter.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7172 Risk Communication: Disasters, Hazards, and the Media Cr. 3**

Introduces students to the role of mass media in communicating about disasters and hazards, public opinion and cultural understanding of risk as expressed through popular culture, individual and public policy response to risk messages, and some introduction to the ethical issues embedded in the concept of risk. Offered Fall.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7200 Visual Communication Cr. 3**

Analysis of symbolic and performative dimensions of visual communication from a variety of perspectives (rhetorical, social scientific, critical/cultural), reflective of the instructor's expertise. Students may analyze political communications, data visualizations, films, ad campaigns, or other types of media across various modes of conveyance (i.e. print, television, and/or digital platforms). Offered Every Other Year.

**Restriction(s):** Enrollment limited to Graduate level students.

**COM 7210 New Media and Strategic Communication Cr. 3**  
 Fundamental theories and practical applications of social media, and its strategic use in public relations and professional communication. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7220 Professional Issues in Applied Communication Cr. 3**  
 Offered Winter.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7240 Communication Consulting and Training Cr. 3**  
 Theoretical and pragmatic approaches to the design and implementation of strategic communication changes in organizations. Topics: role of change, change strategies, behavioral and structural change, design of communication audits, communication training methods, and relations with client organizations. Offered Every Other Year.  
**Prerequisite:** COM 6250 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7250 Rhetorical Criticism Cr. 3**  
 Principles of criticism as applied to public address; analysis of standards and methods of evaluation; readings in modern criticism of public address. Research project. Offered Fall.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7260 Quantitative Research Methods in Communication Cr. 3**  
 Methods of quantitative research in communication such as experimental design, surveys, content analysis, measurement, descriptive and inferential statistical analysis. Offered Fall.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7270 Advanced Screenwriting Cr. 4**  
 Research and writing for creation of full-length dramatic or documentary film and television scripts. Offered Every Term.  
**Prerequisite:** COM 5270 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Fees:** \$10

**COM 7290 Contemporary Rhetorical Theory Cr. 3**  
 Exploratory analysis of a broad spectrum of recent works relevant to the art of discourse. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7300 Feminist Rhetorical Criticism Cr. 3**  
 Investigation of philosophical and practical issues inherent in feminist approaches to rhetorical theory and criticism. Offered Every Other Year.  
**Prerequisite:** COM 7250 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7340 Interviewing Cr. 3**  
 Theory and research on interviewing across a range of contexts. Topics include: constructing questions and protocols, listening, role, self-presentation, social understanding. Contexts may include screening, counseling, legal, journalism and research. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7360 Qualitative Research Methods in Communication Cr. 3**  
 Methods of qualitative research in communication such as participant interviews, focus groups, ethnography and analysis. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7365 Ethnographic Methods for Communication Research Cr. 3**  
 Design, implementation and evaluation of ethnographic and participant/observation research studies in communication. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7380 Advanced Media Editing Cr. 3**  
 Principles of video and film editing; exercises and assignments covering pace, meaning, special effects; styles of editing related to genres; non-linear editing software programs. Offered Fall, Winter.  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Fees:** \$30

**COM 7390 Documentary Storytelling II Cr. 3**  
 Second-semester of a two-semester graduate sequence on documentary storytelling. Advanced principles of writing, producing, directing and editing the documentary. Special emphasis on advanced location production and post-production visual storytelling techniques including character development, continuity, and narrative story structure. Graduate students should plan to enroll in this course in the regular semester immediately following their completion of COM 6390. Offered Fall.  
**Prerequisite:** COM 6390 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Fees:** \$125

**COM 7410 Communication Theory Cr. 3**  
 Systematic analysis of major theories of communication including historical/philosophical foundations, current applications, and recent developments. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7420 Seminar in Directing Cr. 3**  
 Provides the advanced media production student the opportunity to devote an entire semester to producing, directing, and editing a significant cinematic or interactive work. It focuses on creative approaches to cinematic visualization, character development, dramatic structure, scene construction, sound design and the direction of performances (actors, talent and production teams) in the crafting of compelling motion picture stories. Students work to establish their artistic voices as they create significant films or interactive digital media projects for professional exhibition and distribution. A completed script or detailed treatment is required prior to registration. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Fees:** \$125  
**Repeatable for 6 Credits**

**COM 7500 Seminar in Mass Media Cr. 3**  
 Advanced topics in mass communication theory and research. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Repeatable for 9 Credits**

**COM 7520 Theories of Media Effects Cr. 3**  
 Survey of research and theory regarding cognitive, emotional, and behavioral effects of mass media on individuals and society. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Repeatable for 998.99 Credits**

**COM 7530 Critical Mass Communication Theory Cr. 3**  
 Foundational readings and concepts; theoretical perspectives of critical theory and cultural studies. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7580 Content Analysis Cr. 3**  
 Theory and practice in quantitative techniques for analyzing texts. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7610 Feminist Media Theory Cr. 3**  
 Overview and discussion of feminist theories, women studies theories, and gender studies theories and their intersections with and applications to theories in communication studies, journalism studies, and media studies. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7700 Political Communication Cr. 3**  
 Theory and methods of political communication. Studied and applied topics such as campaigns, messages, public opinion, news coverage will be analyzed from a variety of perspectives (rhetorical, social scientific, critical/cultural), reflective of the instructor's expertise. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.



**COM 7810 Seminar in Communication Education Cr. 3**

Philosophy and approaches to teaching communication on the college level. Topics include objectives, evaluation, motivation and teaching strategies. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7840 Studies in Communication Education Cr. 3**

Research in communication education: issues, trends and controversies as reflected in major journals. Offered Intermittently.

**Prerequisite:** COM 7810 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 7990 Directed Study: MA Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**COM 7991 Directed Study: PhD Cr. 1-4**

Research in major field for advanced graduate students. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**COM 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 8000 Introduction to PhD Studies Cr. 3**

Introduction to perspectives, approaches and methods of communication research. Required during first term of Ph.D. study in the Communication Department. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 8140 Public Relations Theory Cr. 3**

This course provides a foundational grounding in public relations theories and examines them in different communication contexts, including mediated, crisis, and international. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 8250 Organizational Communication Cr. 3**

Theoretical review of the structure process and function of communication within and between organizations. Analysis of current and emerging issues in the theory and research of organizational communication. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**COM 8340 Communication, Culture, and Conflict Cr. 3**

Overview of communication theory and practice as it relates to issues of culture, conflict and dispute resolution. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**COM 8350 Advanced Study in Rhetorical Criticism Cr. 3**

Study of important decisions in rhetorical criticism; two critical projects refined throughout the term in context of critical process, perspectives and approaches. Offered Every Other Year.

**Prerequisite:** COM 7250 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 8530 Audience Measurement and Survey Techniques Cr. 3**

Theory and application of quantitative and qualitative research techniques in surveying audiences for electronic media. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**COM 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**COM 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**COM 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Yearly.

**Prerequisite:** COM 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Yearly.

**Prerequisite:** COM 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Yearly.

**Prerequisite:** COM 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**COM 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## CRJ - Criminal Justice

**CRJ 1010 Introduction to Criminal Justice Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry

Scientific method and multidisciplinary approach to administration, procedures, and policies of agencies of government charged with enforcing the law, adjudicating crime, and correcting criminal and deviant conduct. Response of justice system to social norms and trends; reciprocal relationship to social behaviors and values. No credit after former CRJ 2000. Offered Every Term.

**CRJ 2130 Introduction to Forensic Anthropology and Human Rights Cr. 3**

Introduction to forensic anthropology and its intersections with human rights issues and investigations in criminology, law, anthropology, and related fields. Forensic anthropology is a subfield of biological anthropology, but interdisciplinary cultural theories in justice, violence, and human rights influence how forensic anthropology is practiced in the US and abroad. The course introduces the basic scientific methodologies used by forensic anthropologists to analyze biological and material remains. It then applies forensic anthropological casework to the examination of human rights investigations and humanitarian concerns to understand how culture influences forensic science and vice versa. Offered Yearly.

**Equivalent:** ANT 2130

**CRJ 2204 Outsiders and Deviants Cr. 3**

Provides an overview of the sociological study of deviance, emphasizing crime and other deviant behaviors and conditions. Offered Yearly.

**Equivalent:** SOC 2204

**CRJ 2550 Race, Crime and Justice Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Introduces students to sociological and legal analysis of the American justice system as a form of race based social control. The class will discuss data, theoretical approaches, and current research about the ways in which race and ethnicity are connected with criminal involvement and criminal justice processing. In doing so, we will learn about the complex ways in which the race-crime-criminal justice connection is both a product of societal forces and affects broader social relations. Offered Yearly.

**CRJ 2650 Gender and Crime Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Critical examination of gender-related issues in criminal justice; impact on defendants, inmates, victims, and criminal justice personnel; relation to policy issues. Offered Yearly.

**Equivalent:** GSW 2650

**CRJ 2750 Diversity Issues in Criminal Justice Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Critical examination of gender, race, class, and ethnicity issues in criminal justice; impact on defendants, inmates, victims, and criminal justice personnel; relation to policy issues. No credit after CRJ/GSW 3750. Offered Yearly.

**Equivalent:** GSW 2750

**CRJ 2995 Special Topics in Criminology Cr. 3**

Special criminology topics. Offered Every Term.

**Repeatable for 6 Credits**

**CRJ 3050 Mental Health and Crime Cr. 3**

Provides a comprehensive overview of the issues and challenges located at the intersection of mental health/illness and the criminal justice system. Attention will be focused on a range of topics, including, but not limited to, the definition of mental illness, deinstitutionalization and criminalization of the mentally ill, the impact of mental illness on criminal proceedings, treatment/intervention effectiveness, and the reentry/reintegration of mentally ill individuals. Offered Intermittently.

**Equivalent:** PH 3050

**CRJ 3110 Domestic Violence and Criminal Justice Cr. 3**

Emotional, physical, and sexual abuse in domestic relationships. Topics include: theories of violence, law, and the response of the justice system. No credit after former CRJ 4750. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 3120 Politics of the Criminal Justice Process Cr. 3**

**Satisfies General Education Requirement:** Civic Literacy  
Political aspects of criminal justice; politics of crime legislation, police function, prosecution, adjudication, and corrections; Federal role in criminal justice. Offered Intermittently.

**Equivalent:** PS 3120

**CRJ 3200 Police and Society Cr. 3**

Overview of policing. Topics include: social and historical origins of policing, police culture, organizational structure of policing, future of policing. No credit after former CRJ 4600. Offered Fall, Winter.

**CRJ 3260 Investigation Cr. 3**

Overview of the history of criminal investigation, the functions of police investigators, crime scene search and evidence processing, an introduction to criminalistics, locating and interviewing witnesses, examining the elements of proof required in specific criminal offenses and interrogation techniques (pre- and post-Miranda). Offered Every Term.

**Prerequisites:** CRJ 1010 with a minimum grade of D-

**CRJ 3270 Public Safety: sUAS (Drone) Technology Programs Cr. 3**

This class focuses on the use of small uncrewed aerial systems (sUAS), generally referred to as drones, within public safety and criminal justice settings. It will examine the evolution of this technology and the types of uses for which sUAS can be employed in public safety and criminal justice settings, as well as the legal, ethical, and privacy issues surrounding the adoption of sUAS programs in criminal justice agencies. Students will also have an opportunity to operate a sUAS / drone in controlled settings. Additionally, students will be prepared to take the FAA's Part 107 Unmanned Aircraft General exam to receive their certificate to become a commercial drone pilot. Offered Yearly.

**CRJ 3350 Corrections Cr. 3**

Description and analysis of legal, social and political issues affecting contemporary correctional theory and practice. Topics include: history of corrections, function and social structure of correctional institutions, institutional alternatives including diversion, probation and parole. Field trips to institutions and community correctional settings normally required. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** SOC 3840

**CRJ 3400 Juvenile Delinquency and Justice Cr. 3**

Overview of the theoretical background, structure, and processes of contemporary juvenile justice, as well as the correlates and characteristics of delinquency. No credit after former CRJ 4410. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 3550 Research Methods in Criminal Justice Cr. 3**

Overview of research design and methodology; criminal justice data sources; designs for research; and introduction to descriptive and inferential statistics in criminal justice. No credit after former CRJ 4860. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 3700 The Judicial Process Cr. 3**

Structure, powers, doctrines and judicial processes including origin, nature and functions of judicial review in the criminal justice system. Offered Yearly.

**Prerequisite:** CRJ 1010 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 3710 Legal Writing for Criminal Justice Cr. 3**

This course will introduce students to the basic elements of legal writing and research in the American legal system, including use of the law library, case analysis, statutory analysis, constitutional analysis, writing legal memorandum, writing legal briefs, and persuasive writing. Offered Yearly.

**CRJ 3800 Criminological Theories Cr. 3**

Delineation, review, and critical analysis of major explanations of criminality including biological, psychological, deterrence, rational choice, learning and integrated theories. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 3900 Comparative Criminal Justice Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry  
Topics include: the foundation of criminal justice system, crime on the world scene, legal traditions, law enforcement, courts and criminal procedure, corrections, and juvenile justice around the world. Offered Yearly.

**CRJ 4050 Crime and Public Health Cr. 3**

Introduces students to the interface between public health and criminal justice in the United States, focusing on different aspects of the relationship. It will first describe the newly emerged epidemiological criminology, and then analyze a variety of topics on crime and public health, including, but not limited to, the health of incarcerated populations, the health of criminal justice professionals, health consequences of crime and risk behaviors, public health and law, gangs and gang violence, mental health and substance abuse, environmental justice, and public health interventions with criminal justice populations. Offered Intermittently.

**Equivalent:** PH 4050

**CRJ 4220 Criminalistics Cr. 3**

Application of the physical and biological sciences to criminal investigation; ballistics, fingerprints, DNA, trace evidence, drugs, arson and explosives, questioned documents, introduction to forensic anthropology, courtroom testimony, ethics. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**CRJ 4230 Child Abuse and Neglect Cr. 3**

Dynamics and psychopathology of child abuse: its incidence and impact on delinquent/criminal behavior, family, community, and the criminal justice system. Offered Intermittently.

**CRJ 4310 Correctional Counseling Methods Cr. 3**

Application of causal theories to counseling strategies. Models for offender classification and treatment. Counselor attitudes and styles. Special issues in the treatment of delinquents. Individual and group models for counseling. Evaluation models to assess counseling effectiveness. Offered Winter.

**Prerequisite:** CRJ 3400 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 4700 Criminal Law Cr. 3**

This course will offer an examination of the substantive law, or the actual laws that govern the people. Substantive law includes common law and statutory rules, doctrines, and principles of substantive criminal law. Students will learn about development of criminal law, general elements of crime, general defenses, principles of accountability, and particular elements of specific crimes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 4705 Wrongful Conviction and Justice System Error Cr. 3**

Covers the criminal justice system correlates, incidence, definitions, and psychological and social consequences of wrongful convictions; exoneree compensation; cognitive biases; wrongful convictions as sentinel events. Topics include mistaken eyewitness identification; false confessions; forensic science issues; incentivized informants; error, misconduct and problems with police, defense attorneys, prosecutors, judges; shortcomings of pre-trial, trial, appellate & post-conviction processes; innocence reforms. Offered Winter.

**Prerequisite:** CRJ 1010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 4740 Constitutional Criminal Procedure Cr. 3**

Topics include: constitutional safeguards, role of the Supreme Court, due process, search and seizure of persons and property, self-incrimination and confessions, right to counsel, and pre-trial and trial processes. Offered Yearly.

**Prerequisite:** CRJ 1010 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**CRJ 4970 Internship in Criminal Justice Cr. 3**

A program of participation and study designed to give students the opportunity to interact with criminal justice professionals in the workplace. Internship opportunities are available in the courts, corrections, law enforcement, and other agencies. Offered Every Term.

**Prerequisites:** CRJ 1010 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students with a major in Criminal Justice; enrollment is limited to Undergraduate level students.

**CRJ 4990 Directed Study Cr. 1-3**

Independent reading or research in a particular facet of criminal justice, culminating in an extended paper or research report prepared under direct supervision of faculty. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 3 Credits**

**CRJ 4998 Honors Thesis in Criminal Justice Cr. 3-6**

Research problem to be completed under the direction of a faculty member. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Criminal Justice or Criminal Justice Honors; enrollment is limited to Undergraduate level students.

**CRJ 5993 Writing Intensive Course in Criminal Justice Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of the instructor for CRJ 3800. Satisfies the University General Education Writing Intensive Course in the Major requirement. Students must submit and endorse the Writing Intensive (CRJ 5993) Contract stating the departmentally-approved requirements of the research writing project. Offered Every Term.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and CRJ 3800 with a minimum grade of D- (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CRJ 5994 Dispute Resolution Cr. 3**

Overview of the processes and actors in the field of dispute resolution including negotiation, mediation, arbitration, and conciliation. Offered Yearly.

**Equivalent:** PCS 5000, PS 5890, PSY 5710

**CRJ 5995 Special Topics in Criminal Justice Cr. 3**

Selected topics in criminal justice issues. Offered Every Term.

**Repeatable for 9 Credits**

**CRJ 7010 Contemporary Criminal Justice Cr. 3**

Survey of classic literature and important contemporary studies of all major facets of criminal justice system, including law, police, prosecution, defense, judiciary, probation, corrections, and parole. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7020 The Nature of Crime Cr. 3**

Definition and measure of crime, crime statistics, types of criminal behavior; focus on causes of crime in context of various theoretical perspectives. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7030 Research Methods for Professionals Cr. 3**

This course covers research issues in field settings, collecting primary data, utilizing secondary data, policy analysis and program evaluation, writing a research proposal or grant proposal, and the ethics of research. It is designed for students who are looking to understand the fundamentals of research process and activities, including evaluation studies as part of their own professional practice. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7040 Evidence-Based Practices in Criminal Justice Cr. 3**

This course covers research and evaluation into what types of interventions and practices used by the police, court, and corrections that have an effect on crime. It is designed for students who are looking to understand the most up-to-date evidence on what works and what doesn't work in criminal justice practices, and the promises and challenges of criminal justice reforms. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7060 Administration in Criminal Justice Cr. 3**

This course covers organizational theories and administrative behaviors in criminal justice agencies. It is designed for students who want to learn the latest theory, research and innovative practices related to leadership and management in criminal justice settings. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7200 Public Policy and Criminal Justice Cr. 3**

Analysis of interrelationship of criminal justice system components and the political setting surrounding the formulation and administration of public policies for crime control. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7220 Delinquency and Justice Cr. 3**

Empirical research on institutions which influence delinquency, including families, peers, and schools. Empirical and conceptual evaluation of delinquency theories; focus on their relationship to juvenile justice and policy. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7230 Policing and Society Cr. 3**

Critical examination of role of police in contemporary society. Seminar topics include: history, culture, and social and organizational context of policing; current issues and future directions. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7240 Corrections Cr. 3**

Legal, social, and political issues in both institutional and community corrections. Topics may include incarceration trends, penal philosophy, sanctions, community-based corrections, overcrowding, and related issues. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7400 Data Management and Analysis for Criminal Justice Cr. 3**

Basic techniques for accessing and managing criminal justice-related data, introduction to quantitative analysis, and introduction to program evaluation. Contemporary data analysis tools in criminal justice. Offered Winter.

**Prerequisite:** CRJ 7860

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7405 Wrongful Conviction Cr. 3**

Causes and incidence of wrongful convictions; innocence movement; psychological and social consequences for exonerees and crime victims; exoneree compensation; legal and policy reforms to reduce wrongful convictions in policing, forensic science, prosecution, and adjudication. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7860 Research Methods in Criminal Justice Cr. 3**

Focus on logic of research designs, sampling techniques, data collection, instrument construction, available data sources in the field of criminal justice. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7870 Master's Capstone Seminar in Criminal Justice Cr. 3**

Students write essays demonstrating their knowledge and critical analysis of criminological and criminal justice theory, research methods, and public policy issues. Offered Fall, Winter.

**Prerequisite:** CRJ 7010 with a minimum grade of B- and CRJ 7020 with a minimum grade of B- and CRJ 7860 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 7990 Directed Study Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**CRJ 7995 Special Topics in Criminal Justice and Criminology Cr. 3**

Specialized topics in criminal justice. Topics may vary from semester to semester. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**CRJ 7999 Master's Essay Direction Cr. 3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CRJ 8999 Master's Thesis Research and Direction Cr. 3,6**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

## CSC - Computer Science

**CSC 0995 Co-op or Internship in Computer Science Cr. 0**

Review of computer science practical experiences resulting from participation in coop/internship program. Offered Every Term.

**CSC 1000 Introduction to Computer Science Cr. 3**

Provides an overview of current computing technology, organization, and use. Topics surveyed include data representation and storage, hardware and software organization, communications technologies, ethical and security issues. Provides hands-on training in common application software, such as word processing, spreadsheets, presentation, as well as in electronic telecommunications, such as e-mail, Internet and database searches. The University database and Internet pages are emphasized. Offered Fall, Winter.

**Fees:** \$35

**CSC 1002 Personal Digital Security Cr. 3**

Students learn how to reduce exposure to risks and how to identify, assess and repair infected devices. Offered Every Term.

**CSC 1050 Introduction to C and Unix Cr. 2**

Introduction to Unix, Unix editor, and C Programming Language. Unix development tools and fundamentals of C language discussed. No credit for computer science students after CSC 1100. Offered Every Term.

**Prerequisites:** MAT 1800 with a minimum grade of C- or MAT 2010-6999 with a minimum grade of C-

**Fees:** \$35

**CSC 1100 Problem Solving and Programming Cr. 4**

Problem solving with algorithms, and their realization as computer programs using a structured, general purpose programming language; data types, operators, expressions, assignment, input and output, selection and repetition control structures; modularity and procedural abstraction using functions with parameters; structured data types, arrays, pointers and strings. No credit after CSC 2000. Offered Every Term.

**Prerequisites:** BE 1600 with a minimum grade of C- and (MAT 1800 with a minimum grade of C- or MAT 2010-6999 with a minimum grade of C-)

**Fees:** \$35



**CSC 1500 Fundamental Structures in Computer Science Cr. 4**

Introduction to fundamental control and data structures in computer science such as algorithms and complexity; recursive algorithms; program correctness using the predicate calculus; reasoning about algorithms using mathematical induction; divide and conquer algorithms; recurrence relations; set properties and their computation; and computing with relations. Graph properties and their computation, and tree properties and their computation, will be covered if time permits. Offered Every Term.

**Prerequisites:** CSC 1100 with a minimum grade of C and MAT 2010 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Computer Technology, Computer Science, Computer Science Honors, Computer Technology Honors, Information Systems Technology or Information Technology.

**Fees:** \$35

**CSC 2000 Introduction to C++ Programming Language Cr. 3**

Elements of C++; arrays, pointers and references; operators; classes and objects. No credit after CSC 1100 and CSC 1101. Offered Every Term.

**Fees:** \$35

**CSC 2110 Computer Science I Cr. 4**

Rigorous introduction to fundamental object-oriented concepts and techniques of computer programming using an object-oriented language. Introduction to data abstraction; design of abstract data types. Introduction to recursion; programming with generic data types; inheritance; polymorphism; and exception handlers. Concepts applied to console programs and event-driven programming using a simple graphics API. Offered Every Term.

**Prerequisites:** CSC 1100 with a minimum grade of C and MAT 2010 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Computer Technology, Computer Science, Computer Science Honors, Computer Technology Honors, Information Systems Technology, Information Technology or Information Technology Honors.

**Fees:** \$35

**CSC 2200 Computer Science II Cr. 4**

Design and implementation of fundamental abstract data types of computer science (such as stacks, queues, trees, lists, hashing, and graphs), using an object-oriented language. Programming requirements include the implementation of abstract data types using arrays and dynamic links; recursion; sorting and searching; hashing; and string processing. Introduction to algorithm analysis. Offered Every Term.

**Prerequisites:** CSC 1500 with a minimum grade of C, CSC 2110 with a minimum grade of C, MAT 2010 with a minimum grade of C-, and BE 1200 with a minimum grade of C-

**Fees:** \$35

**CSC 3010 Ethics in Computer Science Cr. 3**

Students will study the ethical and legal issues that arise with the usage and development of computing technology. Students will learn the responsibilities of the computer professionals and how to make appropriate decisions when faced with legal and ethical issues in computing. Offered Every Term.

**Prerequisites:** CSC 2110 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Computer Science, Computer Science Honors, Information Technology or Information Technology Honors.

**CSC 3020 Java Programming Cr. 3**

Introduction to the fundamentals of programming using Java. Topics include: object-oriented programming, classes, constructors, flow control statements, data types, methods, inheritance, data hiding, abstraction, exceptions, file I/O, Java GUI, and Java packages. Offered Every Term.

**Prerequisites:** (MAT 1800 with a minimum grade of C-, MAT 2010 with a minimum grade of C-, or MAT 2020 with a minimum grade of C-) and CSC 2110 with a minimum grade of C

**CSC 3100 Computer Architecture and Organization Cr. 4**

Organization and architecture of computer systems. Topics include: digital logic and digital systems; machine-level representation of data and programs; assembly level machine organization and programming; register-level description of computer execution and the functional organization of a computer; role and function of programming languages, libraries and operating systems; performance evaluation; systems programming. Offered Every Term.

**Prerequisites:** CSC 2200 with a minimum grade of C and MAT 2010 with a minimum grade of C-

**Fees:** \$35

**CSC 3110 Algorithm Design and Analysis Cr. 3**

Formal techniques to support design and analysis of algorithms: underlying mathematical theory and practical considerations of efficiency. Topics include asymptotic complexity bounds, techniques of analysis, algorithmic strategies, advanced data and file structures, and introduction to automata theory and its application to language translation. Offered Every Term.

**Prerequisites:** BE 2100 with a minimum grade of C-, CSC 1500 with a minimum grade of C, CSC 2200 with a minimum grade of C, MAT 2250 with a minimum grade of C-, and MAT 2020 with a minimum grade of C-

**CSC 3200 Programming Languages Cr. 3**

History and overview of programming languages, virtual machines, representation of data types; sequence control; data control, sharing and type checking; run-time storage management; language translation systems; programming language semantics; programming paradigms. Offered Yearly.

**Prerequisites:** CSC 2200 with a minimum grade of C- and MAT 2010 with a minimum grade of C-

**CSC 3400 Human-Computer Interaction Cr. 3**

User interface design, usability, evaluation, user-centered design. Offered Intermittently.

**Prerequisites:** CSC 2110 with a minimum grade of C

**Fees:** \$10

**CSC 3750 Introduction to Web Technology Cr. 3**

Understanding the Internet using several access methods; required software and tools. Topics include: e-mail, FTP, Telnet, Gopher, Archie, Newsgroups, WWW, HTML, CGI and PHP scripting and how to create an active web site. Laboratory exercises required. No credit after CSC 5750. Offered Fall, Winter.

**Prerequisites:** CSC 1100 with a minimum grade of C

**CSC 4110 Software Engineering Cr. 4**

Software life cycle; software requirement analysis; software system design; software implementation and testing; software maintenance; team programming; ethics and programmers. Offered Every Term.

**Prerequisites:** CSC 2200 with a minimum grade of C, CSC 3020 with a minimum grade of C-, and (MAT 2010 with a minimum grade of C- or MAT 3430 with a minimum grade of C-)

**Fees:** \$45

**CSC 4190 Computer Network Systems and Applications Cr. 3**

With no prior networking knowledge required, this course provides a full overview of computer networking. A top-to-bottom approach is leveraged to understand essential network concepts and protocols, from high-level applications to low-level operational functions, including HTTP, TCP/IP, routing, LAN, wireless, etc. Moreover, you will learn socket programming for data communication. Offered Fall, Winter.

**Prerequisites:** CSC 2110 with a minimum grade of C and EET 2720 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Information Technology or Information Technology Honors.

**CSC 4290 Introduction to Computer Networking Cr. 3**

Introduction of topics such as network architecture, multiple access control, packet switching, routing and flow control, congestion control and quality-of-service, Internet protocols, and elements of distributed computing. Offered Yearly.

**Prerequisites:** CSC 2200 with a minimum grade of C- and CSC 3100 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**CSC 4310 IT Software Management Cr. 3**

Covers 12 disciplines of systems management in the approximate order in which they became prevalent and integral to an infrastructure's operation. In doing so, it will cover the people, process, and technology aspects of systems management. The people discussion shows the importance of executive support, customer service, and other management aspects of delivering and supporting IT services. The process issues of systems management are addressed through study of IT infrastructure library (ITIL) processes. The technology aspect covers several key developments that enable these disciplines to be implemented more productively including process automation. Offered Every Term.

**Prerequisites:** CSC 2110 with a minimum grade of C

**CSC 4320 Systems Administration Cr. 3**

Deployment and maintenance of modern computer systems in an operational environment. Conceptual knowledge and practical experience. Topics include: architectures, heterogeneous systems, authentication and security, network services including firewalls, storage services, performance analysis and tuning, management and configuration of services and system resources, system initialization, drivers, cross-platform services, policies and procedures. Offered Every Term.

**Prerequisites:** CSC 2110 with a minimum grade of C

**CSC 4330 Mobile Application Development Cr. 3**

Covers the primary aspects of application development for mobile devices running the Android operating system. Offered Every Term.

**Prerequisites:** CSC 2110 with a minimum grade of C and CSC 3020 with a minimum grade of C-

**CSC 4420 Computer Operating Systems Cr. 4**

Operating system services; file systems; CPU scheduling; memory management; virtual memory; disk scheduling; deadlocks; concurrent processes. Offered for undergraduate major credit only. Offered Every Term.

**Prerequisites:** CSC 2200 with a minimum grade of C and CSC 3100 with a minimum grade of C-

**Fees:** \$35

**CSC 4500 Introduction to Theoretical Computer Science Cr. 3**

Finite automata and regular expressions; context-free grammars; pushdown automata; Turing machines; hierarchy of formal languages and automata; computability and decidability. Offered Every Term.

**Prerequisites:** (CSC 2200 with a minimum grade of C or CSC 5050 with a minimum grade of C) and MAT 2010 with a minimum grade of C-

**CSC 4710 Introduction to Database Management Systems Cr. 3**

Topics include: database concepts, ER modeling, schemas and constraints, SQL and relational algebra, web-based database applications, triggers and views, physical organization and indexing, query processing, query optimization, NoSQL databases. Offered Every Term.

**Prerequisites:** CSC 2200 with a minimum grade of C and CSC 3020 with a minimum grade of C-

**CSC 4760 Introduction to Deep Learning Cr. 3**

In this course, we will first introduce some machine learning principles, which can help us to understand how computer systems can learn something from experience. Based on this, we will discuss the topics related to deep neural networks including the basic concepts and advanced techniques. We will introduce deep learning based applications, such as representations learning for high-dimensional data, such as 3D shapes, images, and text. Moreover, we will discuss recent models for both supervised and unsupervised learning. Special emphasis will be on convolutional architectures, recurrent architectures, and different kinds of losses, unsupervised learning strategies and optimization. Offered Winter.

**Prerequisites:** CSC 2200 with a minimum grade of C and BE 2100 with a minimum grade of C-

**CSC 4860 Introduction to Computer Vision Cr. 3**

This course provides an introduction to computer vision, including fundamentals of image formation, camera imaging geometry, feature detection and matching, object detection, stereo, motion estimation and tracking, image classification, scene understanding, and some deep learning with neural networks. Offered Yearly.

**Prerequisites:** CSC 2200 with a minimum grade of C

**CSC 4990 Directed Study Cr. 1-4**

Individual study as agreed on by student and supervising faculty. Primarily for material not covered in regular courses. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 8 Credits**

**CSC 4992 Special Topics in Computer Science Cr. 1-3**

Topics to be announced in the Schedule of Classes. Maximum of six credits may be applied toward satisfying the computer science elective, in any computer science degree program. Offered Yearly.

**Prerequisite:** CSC 2110 with a minimum grade of C

**Fees:** \$35

**Repeatable for 12 Credits**

**CSC 4995 Professional Practice in Computer Science Cr. 1**

Review of computer science practical experiences resulting from participation in the cooperative work-study program. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**Repeatable for 4 Credits**

**CSC 4996 Senior Capstone Project Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency Development of skills for planning, managing, implementing, and documenting complex software projects. Project management techniques; software development teams; data management, privacy, and security. Offered Fall, Winter.

**Prerequisites:** CSC 3110 with a minimum grade of C-, CSC 4110 with a minimum grade of C-, CSC 4420 with a minimum grade of C- (may be taken concurrently), CSC 4710 with a minimum grade of C-, and ENG 3060 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Computer Science, Computer Science Honors or Information Systems Technology.

**Fees:** \$35

**CSC 4999 Honors Thesis Cr. 3-6**

Independent study under supervision. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Senior.

**CSC 5050 Algorithms and Data Structures Cr. 3**

Introduction to problem solving methods and algorithm development; data abstraction for structures such as stacks, queues, linked lists, trees, and graphs; searching and sorting algorithms and their analysis. Not for CSC major credit. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 5100 Introduction to Mobility Cr. 3**

Introduces mobility through giving students a comprehensive understanding of state-of-the-art engineering practices used in the autonomous vehicle industry. Students will get to interact with real data sets from an autonomous vehicle, all through hands-on projects using the open source autonomous driving simulator. Students will hear from industry experts, who work at companies like Ford and GM as they share insights about autonomous technology and how that is powering job growth within the field. Students will also be introduced to the general terminology, design considerations and smart infrastructures on mobility. Offered Winter.

**Prerequisites:** CSC 3100 with a minimum grade of C- and CSC 3110 with a minimum grade of C-

**CSC 5250 Network, Distributed, and Concurrent Programming Cr. 3**

Fundamental concepts and skills of developing networked, distributed, and concurrent applications. Topics include: inter-process communication, TCP/IP sockets programming, remote method invocation, multithreading, concurrency and synchronization. Offered Yearly.

**Prerequisites:** CSC 4420 with a minimum grade of C-

**CSC 5270 Computer Systems Security Cr. 3**

Fundamental technologies for enabling an e-society which is more predictable, more accountable, and less vulnerable to attacks. Covers three components: security requirements and protocols, cryptography algorithms, and case studies. Offered Fall.

**Prerequisites:** CSC 5250

**CSC 5272 Principles of Cyber Security Cr. 3**

Addresses the broad range of industry best practices, knowledge, and skills expected of an IT security manager or officer. Students will learn both the theory and the requirements for practical implementation of core security concepts, practices, monitoring, and compliance. Students will also learn to identify and maintain cost-effective security controls that are closely aligned with business requirements and industry standards. Offered Every Term.

**Prerequisites:** CSC 2200 with a minimum grade of C or CSC 3020 with a minimum grade of C-

**CSC 5276 Unix Security and Shell Programming Cr. 3**

This course will feature advanced Linux shell scripting which will show students how to automate specific tasks within the system while also safeguarding against bad actors from compromising the environment. This class will focus on the BASH and Bourne shells with an emphasis on learning SED, AWK and other powerful tools. The class will analyze system threats utilizing the latest in log management. Offered Yearly.

**Prerequisites:** CSC 5272 with a minimum grade of C-

**CSC 5278 Web Security: Hacking and Defense Cr. 3**

This course introduces students to web application threats both internally and externally. Malicious code can enter a system from many avenues and attackers. The students will learn both offensive and defensive strategies to thwart a variety of attacks like an SQL Injection, Cross-site Scripting (XSS), Cross Site (CSRF) and Server Side Request Forgery (SSRF). The student's will be using industry best practices tools like BurpSuite, Wireshark, wpscan, sqlmap, RainbowCrack and Zap. The goal of the course is to learn how to make the target surface as small as possible while not impeding the throughput of the data while keeping critical infrastructure operational. Offered Yearly.

**Prerequisites:** CSC 5272 with a minimum grade of C-

**CSC 5280 Introduction to Cyber-Physical Systems Cr. 3**

Topics include: modeling, design, analysis, and implementation of cyber-physical systems; dynamic behavior modeling, state machine composition, and concurrent computation; sensors and actuators; embedded systems and networks; feedback control systems; temporal logic and model checking. Offered Yearly.

**Prerequisites:** CSC 3100 with a minimum grade of C- and CSC 3110 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** ECE 5280

**CSC 5290 Cyber Security Practice Cr. 3**

This course will explore board security topics in the areas of network and operating systems. In particular, this course focus on providing hands-on experience leveraging various security tools, aiming to help students understand real-world security threats. It will cover both offensive and defensive methods in a laboratory environment. Students are expected to finish lab assignments using real-world exploits and defense tools. Offered Every Term.

**Prerequisites:** CSC 4190 with a minimum grade of C- or CSC 4420 with a minimum grade of C-

**CSC 5430 Game Programming and Design I Cr. 3**

Fundamentals of game programming and game design using C++, DirectX, Windows, and C#. Offered Fall.

**Prerequisites:** CSC 2200 with a minimum grade of C or CSC 5250 with a minimum grade of C-

**Corequisite:** CSC 5431

**CSC 5431 Game Programming and Design I: Lab Cr. 1**

Laboratory for CSC 5430. Focus on modding, or making changes to existing programs to achieve specific results. Offered Fall.

**Corequisite:** CSC 5430

**Fees:** \$25

**CSC 5710 Design of Intelligent Information Retrieval Systems Cr. 3**

Indexing retrieval models (vector space, probabilistic and language models); document classification models (Naive Bayes and SVM); topic models (PLSA and LDA) and learning-to-rank methods; course includes practical assignments and a team-based final project. Offered Yearly.

**Prerequisites:** CSC 5800 with a minimum grade of C-

**CSC 5750 Principles of Web Technology Cr. 3**

History and development of the world-wide web. Techniques for authoring static and dynamic content for the world-wide web. Web security techniques. Electronic commerce on the web. Lab exercises required. Offered Fall, Winter.

**Prerequisites:** MAT 2010 with a minimum grade of C- and CSC 3750 with a minimum grade of C-

**CSC 5800 Intelligent Systems: Algorithms and Tools Cr. 3**

Introduction to basic algorithms and software tools for intelligent data representation and analysis, including: data pre-processing, data exploration and visualization, model evaluation, predictive modeling, classification methods, association analysis, clustering, anomaly detection, representing extracted patterns as expertise, tools for data mining and intelligent systems such as WEKA, CLIPS, and MATLAB. Offered Intermittently.

**Prerequisites:** (CSC 2200 with a minimum grade of C and MAT 2010 with a minimum grade of C-) or (CSC 5050 with a minimum grade of C and MAT 2010 with a minimum grade of C-)

**CSC 5825 Introduction to Machine Learning and Applications Cr. 3**

Through algorithmic investigation, brainstorming, and case analysis, students develop the skills and strategies that are necessary for effective learning from data, including Big Data emerging from science and engineering. Offered Winter.

**Prerequisites:** CSC 3110 with a minimum grade of C-

**CSC 5830 Computational Modeling of Complex Systems Cr. 3**

Introduction to computer methods useful for modeling complex systems which are refractory to traditional methods of analysis. Emphasis on problem formulation and concrete examples drawn from computer science, engineering, chemistry, and biology. Offered Yearly.

**Prerequisites:** CSC 2200 with a minimum grade of C or CSC 5050 with a minimum grade of C-

**CSC 5870 Computer Graphics I Cr. 3**

Graphics devices, graphics primitives, 2-D transformations, windowing and clipping, modeling 3-D objects, 3-D viewing transformations, hidden surface removal, shading and color. Offered Yearly.

**Prerequisites:** (CSC 5050 with a minimum grade of C and MAT 2250 with a minimum grade of C-) or (CSC 2200 with a minimum grade of C and MAT 2250 with a minimum grade of C-)

**CSC 5991 Special Topics in Computer Science Cr. 1-4**

Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** CSC 2200 with a minimum grade of C

**Repeatable for 9 Credits**

**CSC 6110 Software Engineering Cr. 3**

Software process models; advanced software system design; software project management; software analysis; testing and performance analysis; software maintenance; reverse engineering; software reuse; software metrics; object-oriented development. Offered Yearly.

**Prerequisites:** (CSC 2200 with a minimum grade of C and MAT 2010 with a minimum grade of C-) or (MAT 2010 with a minimum grade of C- and CSC 5050 with a minimum grade of C-)

**CSC 6220 Parallel Computing I: Programming Cr. 3**

Parallel computing concepts, examples of parallel computers, parallelism in algorithms / data / programs, experiences with state of the art parallel computers. Offered Yearly.

**Prerequisites:** (CSC 2200 with a minimum grade of C and CSC 5050 with a minimum grade of C) or CSC 3100 with a minimum grade of C-

**CSC 6272 Malware and Reverse Engineering Cr. 3**

This course will equip students with the necessary background knowledge to become effective Malware Analysis and Reverse Engineering practitioners. The students will learn techniques on how to detect and dissect code with the goal of finding out exactly what the program is doing down to the byte level. The students will gain knowledge on how to handle Command and Control type of Ransomware along with viruses that are intended to take down critical infrastructure. The students will learn how to combat malware and viruses by using tools like Olydbg, Ghidra, Radare2 and NASM Shell. These programs will allow the students to view the payloads of the latest real-world malware. The students will also gain an understanding of how industry best practices on how an attacker has spread the code and most of all, eradicate them. Offered Yearly.

**Prerequisites:** CSC 5272 with a minimum grade of C-

**CSC 6274 Certified Penetration Testing Cr. 3**

The ethical behavior expected of a cyber penetration tester is emphasized. Several applicable codes of ethics will be reviewed. Students are expected to abide by these codes of ethics, both during this course, and after the course is completed. The student will learn the business skills needed to identify protection opportunities, to justify testing activities, and to help the client organization better combat cyber threats. The student will gain deeper insight into industry best practices. Offered Yearly.

**Prerequisites:** CSC 5272 with a minimum grade of C-

**CSC 6280 Real-Time and Embedded Operating Systems Cr. 3**

Operating system design for real-time and embedded systems. Focus on scheduling, synchronization, communication, and process and memory management for time-critical and resource-constrained applications. Offered Every Other Year.

**Prerequisites:** CSC 4420 with a minimum grade of C-

**CSC 6290 Data Communication and Computer Networks Cr. 3**

Data communication fundamentals and principles governing computer communication networks. Components of networks, how they are connected; basics of design and implementation of network protocols. Offered Yearly.

**Prerequisites:** CSC 5250

**CSC 6430 Game Programming and Design II Cr. 3**

Game design methods, team development, languages for game design, debugging and testing, game platforms, memory management and I/O, game physics, character animation, AI agents, AI path programming, networking, online and multiplayer gaming. Offered Yearly.

**Prerequisites:** CSC 5430 with a minimum grade of C- and CSC 5431 with a minimum grade of C-

**Corequisite:** CSC 6431

**CSC 6431 Game Programming and Design II: Lab Cr. 1**

Architecture and tools for modern game platforms. Game development environment; basic aspects of game engine design, graphics engine design, use of shaders. Offered Yearly.

**Corequisite:** CSC 6430

**Fees:** \$25

**CSC 6500 Theory of Languages and Automata Cr. 3**

Recursive and recursively enumerable languages; decidability and computability; Rice's theorem; time complexity; space complexity. Offered Fall, Winter.

**Prerequisites:** CSC 4500 with a minimum grade of C-

**CSC 6580 Design and Analysis of Algorithms Cr. 3**

Best case, worst case, and expected case complexity analysis; asymptotic approximations; solutions of recurrence equations; probabilistic techniques; divide-and-conquer; the greedy approach; dynamic programming; branch and bound; NP-completeness; parallel algorithms. Offered Fall, Winter.

**Prerequisites:** CSC 3110 with a minimum grade of C-

**CSC 6620 Matrix Computation I Cr. 4**

Background matrix algebra; linear system sensitivity; basic transformations; Gaussian elimination; symmetric systems; positive definite systems; Householder method for least squares problems; unsymmetric eigenvalue problems; the QR algorithm. Offered Yearly.

**Prerequisites:** (CSC 2200 with a minimum grade of C and MAT 2250 with a minimum grade of C-), ECE 3440 with a minimum grade of C-, or BE 2550 with a minimum grade of C-

**CSC 6710 Database Management Systems I Cr. 3**

Data models, normal forms, relational systems and SQL, query optimization, object-oriented systems, object-relational systems, student Oracle project. Offered Yearly.

**Prerequisites:** CSC 4710 with a minimum grade of C-

**CSC 6720 Data Science Applications Development Cr. 3**

Background of SQL and NoSQL databases is necessary. This course focuses on the system development life cycle of a comprehensive data science application. Students will first choose a particular domain and problem to address one of the big data challenges: volume, velocity, or variety. Students will then choose a scalable distributed computing environment to design analytical models to solve business problems. Students will finally develop their data science application using agile methodologies to plan, analyze, design, implement, and operationalize their application. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.



**CSC 6800 Artificial Intelligence I Cr. 3**

Basic concepts; topics include: recursive problem solving, knowledge representation using semantic networks and frames, state space search methods, planning and problem solving, game playing and adversarial search methods, rules and production systems (RETE networks), constraint satisfaction techniques and applications, optimization algorithms including genetic algorithms, logic programming. Implementation in Lisp and Prolog. Offered Yearly.

**Prerequisites:** CSC 3110 with a minimum grade of C-

**CSC 6860 Digital Image Processing and Analysis Cr. 3**

Review of image formation and acquisition; image transformation; image enhancement and restoration; image compression; morphological image processing; edge detection and segmentation; architecture for image processing. Offered Intermittently.

**Prerequisites:** CSC 3110 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**CSC 6870 Computer Graphics II Cr. 3**

Representing curves and surfaces; solid modeling; fractal geometry; camera models; illumination models; ray tracing; radiosity methods; transparency; texture; graphics packages. Offered Yearly.

**Prerequisites:** CSC 5870 with a minimum grade of C-

**Fees:** \$20

**CSC 6991 Topics in Computer Science Cr. 1-4**

Current topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** CSC 2200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**Repeatable for 9 Credits**

**CSC 6995 Internship in Computer Science Cr. 1-3**

Experience in industry using tools from the computer science curriculum. Students provide a written report based on the internship experience. Offered Every Term.

**Repeatable for 6 Credits**

**CSC 7220 Parallel Computing II: Algorithms and Applications Cr. 3**

Problems in parallel algorithms: design, analysis, complexity. Cluster and grid computing: tools, programming, and applications. Offered Yearly.

**Prerequisite:** CSC 6220 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 7260 Distributed Systems Cr. 3**

Models of distributed systems, distributed synchronization, algorithms, consistency and replication models and algorithms, fault-tolerance in distributed systems. Offered Every Other Year.

**Prerequisite:** CSC 5250 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 7270 Advanced Computer Security Cr. 3**

Advanced topics in protecting information computer systems and data. Topics include, but are not limited to, crypto-algorithms and protocols (e.g., IDEA, Elliptic Curve Cryptosystems, and the Byzantine Generals Problem), and secure system design principles. Hands-on design project will reinforce the material. Offered Winter.

**Prerequisite:** CSC 5270 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**CSC 7290 Advanced Computer Networking Cr. 3**

Foundations of computer networking (e.g., performance evaluation and analysis, protocol specification and verification), latest development in network architecture and technology (e.g., wireless networks, sensor networks, peer-to-peer networks, vehicular networks). Offered Yearly.

**Prerequisite:** CSC 6290 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**CSC 7300 Bioinformatics I: Biological Databases and Data Analysis Cr. 3**

Concepts of bioinformatics; tools for storing and analysis of bioinformatics data. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 7301 Bioinformatics I: Programming Lab Cr. 1**

Hands-on experience and exercises for CSC 7300/MBG 7300 lectures. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**CSC 7410 Bioinformatics II Cr. 4**

Biology of bioinformatics, DNA and protein sequencing, introduction of systems biology, mRNA expressions analysis, pathway and molecular machines analysis. Offered Winter.

**Prerequisite:** CSC 7300 with a minimum grade of C and CSC 7301 with a minimum grade of C and MGG 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 7710 Database Management Systems II Cr. 3**

Concurrency control, transaction processing, crash recovery, security, distributed and heterogeneous databases, data warehousing, data mining, multimedia systems, student Oracle project. Offered Yearly.

**Prerequisite:** CSC 6710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 7760 Deep Learning Cr. 3**

Covers the basics of deep neural networks and their applications in various AI tasks. Students will gain a considerable understanding regarding the subject and be able to apply Deep Learning to a range of problems. They will also be positioned to understand the current literature on the topic and extend their knowledge through further study. The following topics will be covered: Feed-forward Deep Neural Networks, Regularizations, Optimization methods, Convolutional Neural Networks, Sequence Modeling: Recurrent and Recursive Networks, Autoencoders and Generative Adversarial Networks and Applications in Object Detection, Natural Language Processing, Relational Reasoning, and Spatial-temporal and Graph Modelling. Programming tutorials on Python, Jupyter, TensorFlow, and Keras will also be provided. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 7800 Artificial Intelligence II Cr. 3**

Advanced topics from these areas: machine learning techniques (inductive and deductive), neural networks and perceptrons, genetic algorithms, advanced concepts in knowledge-based system design, inexact inference, constraint satisfaction techniques and applications, object-oriented programming. Implementation in Lisp and Prolog. Offered Yearly.

**Prerequisite:** CSC 6800 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 7810 Data Mining: Algorithms and Applications Cr. 3**

Application of various basic/advanced data mining techniques to real-world problems. Offered Winter.

**Prerequisite:** CSC 5800 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** IE 7811

**CSC 7825 Machine Learning Cr. 3**

Supervised learning including regression, kernel-based, tree-based, probability model based and ensemble learning; unsupervised learning including distance based and model based; Markov Chain Monte Carlo (MCMC) methods; graphical models; current topics from literature. Offered Fall.

**Prerequisite:** CSC 5825 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 7990 Directed Study Cr. 1-5**

Provides students with an opportunity to explore topics or areas of interest not covered in the standard curriculum. Provides more flexible and personalized instruction, allowing students to work closely with a faculty member. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CSC 7991 Advanced Topics in Computer Science Cr. 1-4**

Topics to be announced in the Schedule of Classes. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**CSC 8260 Seminar in Networking, Distributed Systems and Parallel Systems Cr. 3**

Discussion of current research papers in the fields. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**CSC 8710 Seminar in Database Management Systems Cr. 3**

Discussion of current papers in the field. Offered Every Other Year.

**Prerequisite:** CSC 6710

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**CSC 8800 Seminar in Machine Learning and Artificial Intelligence Cr. 3**

Discussion of current papers in the field. Prospective students should have a solid understanding of machine learning models, optimization algorithms and the underlying mathematics/programming background. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**CSC 8860 Seminar Topics in Computer Vision and Pattern Recognition Cr. 3**

Discussion of current papers in the field. Offered Every Other Year.

**Prerequisite:** CSC 7860 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 8990 Graduate Seminar Cr. 1**

Discussion of current research by faculty and visitors. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**CSC 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**CSC 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**CSC 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CSC 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CSC 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** CSC 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**CSC 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## CTE - Career and Technical Education

**CTE 5401 Instructional Practices for the Career and Technical Education Classroom: Module 1 Cr. 1**

The series is specifically for students seeking a vocational endorsement to teach in federally funded, secondary CTE classrooms. This module reviews the history of CTE and its impact on industry. Offered Every Term.

**CTE 5402 Instructional Practices for the Career and Technical Education Classroom: Module 2 Cr. 1**

This is Module Two of a six (6) module series. The series is specifically for students seeking a vocational endorsement to teach in federally funded, secondary CTE classrooms. This module reviews MCCTE Navigator standards and their relationship to industry expectations. Offered Every Term.

**CTE 5403 Instructional Practices for the Career and Technical Education Classroom: Module 3 Cr. 1**

This is Module Three of a six (6) module series. The series is specifically for students seeking a vocational endorsement to teach in federally funded, secondary CTE classrooms. This module reviews mastery-learning, performance-based and project-based instructional strategies in the CTE classroom. Offered Every Term.

**CTE 5404 Instructional Practices for the Career and Technical Education Classroom: Module 4 Cr. 1**

This is Module four of a six (6) module series. The series is specifically for students seeking a vocational endorsement to teach in federally funded, secondary CTE classrooms. This module reviews assessment strategies in the CTE classroom. Offered Every Term.

**CTE 5405 Instructional Practices for the Career and Technical Education Classroom: Module 5 Cr. 1**

This is Module five of a six (6) module series. The series is specifically for students seeking a vocational endorsement to teach in federally funded, secondary CTE classrooms. This module reviews Career Technical Student Organization (CTSO) and industry partner relationships. Offered Every Term.

**CTE 5406 Instructional Practices for the Career and Technical Education Classroom: Module 6 Cr. 1**

This is Module six of a six (6) module series. The series is specifically for students seeking a vocational endorsement to teach in federally funded, secondary CTE classrooms. This module reviews strategies for remaining current with industry and teaching profession trends. Offered Every Term.

**CTE 6010 History and Principles of Career and Technical Education Cr. 3**

Overview of organization and administration at the federal, state, and local levels. Recent developments and their significance for school reform and improvement; business and industry linkages. Offered Yearly.

**CTE 8998 Current Issues and Trends Cr. 3**

Place, function, and evolving concepts of career and technical education. Economic, sociological, psychological, and technical factors. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

## DNC - Dance

**DNC 0512 Pilates Equipment Lab Cr. 0**

Individual study in Pilates lab. Offered Fall, Winter.

**Prerequisites:** DNC 5110 or DNC 1305

**Restriction(s):** Enrollment is limited to students with a major in 2nd Dance, Dance or Dance Honors.

**DNC 1010 Introduction to Contemporary Dance Cr. 2**

Basic movement techniques and improvisational experiences in concert dance; films and concert viewing. Offered Every Term.

**Fees:** \$85

**DNC 1020 Contemporary Dance I Cr. 2**

Draws from a broad range of classical Modern dance techniques, such as Horton and Graham, as well as from somatic practices and urban contemporary dance styles, in order to develop the vocabulary, skills, physical and mental awareness of a beginning dancer. Offered Every Term.

**Fees:** \$60

**Repeatable for 6 Credits**

**DNC 1210 Fundamentals of Classic Ballet I Cr. 2**

Introduction to the fundamentals of classical ballet; emphasis on vocabulary, theory and practice, including films and concert viewing. Offered Every Term.

**Fees:** \$60

**Repeatable for 8 Credits**

**DNC 1220 Fundamentals of Classic Ballet II Cr. 2**

Continuation of DNC 1210. Offered Every Term.

**Fees:** \$60

**Repeatable for 8 Credits**

**DNC 1260 Introduction to the Philosophy and Practice of Iyengar Yoga Cr. 3**

Yoga philosophy and practice is presented in a format to enrich appreciation for the art of Yoga as both a belief system and as a physical art form through in-depth study and discussion of its philosophical principles and daily practice of asana (postures) with attention to balance, precision and alignment. Offered Every Term.

**Fees:** \$30

**DNC 1300 Pilates Conditioning for Performing Artists Cr. 2**

An Introduction to Pilates principles and conditioning methods for dance and theatre artists. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Dance, Dance Honors, Theatre or Theatre Honors.

**Fees:** \$40

**Repeatable for 4 Credits**

**DNC 1305 Pilates Reformer for Dancers Cr. 1**

Continuation of DNC 1300; Pilates equipment training specifically for dancers. Offered Winter.

**Prerequisites:** DNC 1300 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Dance or Dance Honors.

**Fees:** \$60

**DNC 1330 Production Practicum Cr. 2**

Introductory technical production experience supporting concert dance performances; skill development in stage management, lighting and sound operation, videography, and stage crew responsibilities; part of Digital Dance Literacy curriculum. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$85

**Repeatable for 99 Credits**

**DNC 1810 Introduction to Dance Professions Cr. 3**

Survey of dance professions in administration, teaching, arts management and advocacy, dance production and commercial sector. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$30

**DNC 2000 Introduction to World Dance Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Visual Performing Arts

Global perspective on and definition of dance, through assigned readings, writing, field trips, and laboratory experience. Focus on multicultural diversity, interdependent nature of dance. Offered Every Term.

**Fees:** \$50

**DNC 2010 Contemporary Dance II: Part I Cr. 2**

Modern dance technique of increasing difficulty and complexity; experiences in improvisation, problem solving, and compositional studies in dance. Offered Fall, Winter.

**Prerequisite:** DNC 1020 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$60

**Repeatable for 12 Credits**

**DNC 2020 Contemporary Dance II: Part II Cr. 2**

Continuation of DNC 2010. Modern dance technique of advancing difficulty; further experiences in improvisation, problem solving and composition; analysis and refinement of technique and performance skills. Offered Winter.

**Prerequisite:** DNC 2010 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$60

**Repeatable for 12 Credits**

**DNC 2180 Anatomy of Human Movement Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry

An introduction to the anatomy of human movement for non-science majors examining anatomy as the foundation of dance kinesiology. Content includes skeletal, nervous, and muscular systems in relationship to movement. Science students are welcome and will find the movement-oriented focus in DNC 2180 different from the focus of anatomy courses offered in Biology. Offered Every Term.

**DNC 2250 Men's Ballet Cr. 1**

Introduction to men's ballet including terminology, movement vocabulary, aesthetics and classroom etiquette. Offered Yearly.

**Prerequisites:** DNC 1220 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Dance or Dance Honors; enrollment is limited to Undergraduate level students.

**Fees:** \$60

**Repeatable for 6 Credits**

**DNC 2300 History of Dance to 1800 Cr. 3**

Survey of dance in western civilization from pre-historic times through the eighteenth century; how dance evolved from expression of primitive cultures to independent theatrical entertainment in western Europe. Offered Every Other Winter.

**Fees:** \$30

**DNC 2310 History of Dance from 1800 to the Present Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Introduction to critical dance studies and dance history from 1800-present. Impact of vernacular dance and historical ballet and modern concert dance on contemporary dance, examined formally and socio-culturally. How dance circulates globally as mediated and embodied history. Offered Fall, Winter.

**Fees:** \$30

**DNC 2311 Issues and Trends in Contemporary Dance Cr. 2**

Discussion of current events, trends and issues; includes technology component as part of Digital Dance Literacy curriculum. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$30

**DNC 2400 Introduction to African Dance Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Exploration of African and African derived dance forms, together with their integrated philosophy, music, art and theatre forms. Lectures, videos, concert attendance and reading assignments to learn and perform dances from selected African societies. Offered Every Term.

**Fees:** \$60

**DNC 2410 Music and Dance Relationships Cr. 3**

Study of the basic elements common to dance and music including rhythm, dynamics, and form. Examples of music especially composed for dance will be examined along with dance styles of historical periods; includes technology component as part of Digital Dance Literacy curriculum. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$30

**DNC 2460 Dance Improvisation Cr. 2**

Introduction to dance improvisational techniques and performance skills as applied to movement invention, performance, and choreography. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors; enrollment is limited to Undergraduate level students; enrollment limited to students in the Fine, Performing & Comm. Arts.

**DNC 2500 Choreography I Cr. 2**

Construction of motifs and dance studies based on nonliteral and literal thematic materials; emphasis on form and structural concepts. Offered Winter.

**Prerequisites:** DNC 2460 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**DNC 2600 African Dance II Cr. 2**

Intermediate technique and theory. Offered Fall, Winter.

**Prerequisite:** DNC 2400 with a minimum grade of C-

**Fees:** \$60

**Repeatable for 8 Credits**

**DNC 2610 African Diasporic Dance Technique I Cr. 2**

An introduction to the technique and theory of one of the following African Diasporic dance forms: Roots of Jazz, Hip-Hop, Tap, Afro-Brazilian, Afro-Caribbean, or Afro-Beat. Through introducing the culture, history, movement, and theories of dances with Africana roots, the aim of this course is to expand students' embodied global and cultural knowledge. Highlighting technical foundations of Africana dance aesthetics, style, and musical accompaniment will emphasize the role of dance as expression of socio-cultural experience. Some reading required. Offered Fall, Winter.

**Repeatable for 8 Credits**

**DNC 2620 Tap Dance Cr. 1**

Study and practice of tap dance technique and choreography. Offered Yearly.

**Fees:** \$50

**Repeatable for 3 Credits**

**DNC 2630 Hip Hop Dance Styles Cr. 1**

Study and practice of hip hop dance styles. Offered Yearly.

**Fees:** \$50

**Repeatable for 2 Credits**

**DNC 3010 Contemporary Dance III Cr. 2**

Continuation of DNC 2020; contemporary dance technique at the intermediate level. Offered Fall, Winter.

**Prerequisites:** DNC 2010 with a minimum grade of C- or DNC 2020 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$60

**Repeatable for 8 Credits**

**DNC 3180 Dance Science Cr. 3**

Continued examination of dance movement from an anatomical and mechanical point of view. Relationships between neuroscience, psychology, nutrition, injury prevention and overall wellness are examined in relationship to dance technique and performance. Offered Winter.

**Prerequisite:** DNC 2180 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**DNC 3190 Movement Analysis Cr. 3**

Continuation of anatomical and mechanical analyses of dance; emphasis on somatic and dance science approaches. Offered Every Other Winter.

**Prerequisites:** DNC 3180 with a minimum grade of C-

**DNC 3200 Ballet III Cr. 2**

Continuation of DNC 1220 on a more advanced technical level with emphasis on complex movement phrases and selections from classical repertory. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$60

**Repeatable for 16 Credits**

**DNC 3220 Ballet Pointe Technique Cr. 1**

Technical skill development on pointe. Offered Fall.

**Prerequisite:** DNC 1220 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$60

**Repeatable for 4 Credits**

**DNC 3300 Pilates Equipment Lab Cr. 1**

Continued study in Pilates conditioning. Offered Fall.

**Prerequisite:** DNC 1300

**Fees:** \$30

**Repeatable for 8 Credits**



**DNC 3310 Dance Production Cr. 3**

Concentration on selected types of dance production including an examination of purpose and content; technical considerations such as costumes, makeup, lighting and decor; the management of performance-related matters, and the use of technology, computer and video to support production work; part of Digital Dance Literacy curriculum. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$30

**DNC 3410 African Diasporic Dance Technique II Cr. 2**

A continued exploration of the technique and theory of one of the following African Diasporic dance forms: Roots of Jazz, Hip-Hop, Tap, Afro-Brazilian, Afro-Caribbean, or Afro-Beat. Offered Yearly.

**Prerequisite:** DNC 2610 with a minimum grade of C-

**Fees:** \$50

**Repeatable for 8 Credits**

**DNC 3500 Choreography II Cr. 2**

Exploration of time, space, and design tools for choreography; focus on formal construction of small group studies and dances. Offered Fall.

**Prerequisites:** DNC 2410 with a minimum grade of C- and DNC 2500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$50

**DNC 3600 Choreography and Digital Media Design Cr. 2**

In this class, students will learn how to design and create digital media within the choreographic process for live and virtual performances. This will include: 1) filming, editing, and projecting screendance media; 2) devising with dynamic lighting; and 3) working with novel and emerging technologies. Students will learn new design skills and then integrate media into student choreographic processes. Coursework will include software/hardware skills building, readings/viewings, and choreographic design explorations. All coursework will be organized around projects crafted to teach students how to work with and implement digital media and technologies within their own devising process for virtual and live dance performances. This is an applied studio class in which the focus is on devising and creating new work. Readings and viewings will be incorporated into the course throughout the course based on student interests and desires. Offered Fall.

**Prerequisites:** DNC 3500 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students with a major, minor, or concentration in Dance or Dance Honors.

**Fees:** \$30

**DNC 3810 Dance Pedagogy Cr. 3**

Theory and practice of dance teaching in arts education; foundational emphasis on social and cultural aspects of pedagogical theory in multiple settings. Offered Winter.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$30

**DNC 4000 Performance Tour Cr. 2**

Development and performance of touring dance performances off campus including regional, national, and international festivals; productions for elementary, middle and secondary school audiences. Offered Winter.

**Prerequisites:** DNC 4710 with a minimum grade of C-

**Repeatable for 8 Credits**

**DNC 4010 Contemporary Dance IV Cr. 2**

Continuation of DNC 3010. Contemporary dance technique, advanced level. Offered Fall, Winter.

**Prerequisites:** DNC 3010 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$60

**Repeatable for 16 Credits**

**DNC 4200 Ballet IV Cr. 2**

Continuation of DNC 3200 with emphasis on advanced knowledge of classical ballet vocabulary. Offered Every Term.

**Prerequisite:** DNC 3200 with a minimum grade of C- or DNC 2210 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$60

**Repeatable for 16 Credits**

**DNC 4410 Student Teaching and Seminar I Cr. 2-6**

First experience in student teaching. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**DNC 4420 Student Teaching and Seminar II Cr. 2-6**

Second experience in student teaching. Offered Fall, Winter.

**Prerequisite:** DNC 4410 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**DNC 4500 Qualitative Research in Dance and Theatre Arts Cr. 3**

A survey of qualitative research design and methodology in dance and theatre arts with particular emphasis on empirical and exploratory research drawn from descriptive, ethnographic, case study, participatory action research, interpretive and critical approaches, among others. Offered Every Other Fall.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students in the Department of Theatre and Dance.

**Equivalent:** THR 4500

**DNC 4601 Problems in Choreography Cr. 2**

Seminar discussion and applied experiences in choreographic problems; intensive study of choreographic structure, content and intention. Offered Fall, Winter.

**Prerequisite:** DNC 2500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**DNC 4710 Dance Company Cr. 3**

Performing company. Open to students interested in performing and/or choreographing. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$80

**Repeatable for 18 Credits**

**DNC 4800 Repertory Cr. 2**

Learning, for performance, of dance repertory, dances previously choreographed by faculty, or work of artist-in-residence. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$60

**Repeatable for 30 Credits**

**DNC 4810 Dance Teaching Methods Cr. 3**

Analysis of instructional methods and materials in dance teaching including

creative movement, western concert dance, social and urban dance forms; special attention to community, recreational, private studio settings, and classroom management. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Dance or Dance Honors.

**DNC 4820 Assisting in Dance Cr. 1**

Assigned field work in assisting under faculty supervision. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 4 Credits**

**DNC 4910 Dance in Community Cr. 3**

Survey of dance in community settings, with emphasis on sociocultural aspects and social inclusion of disenfranchised or underrepresented populations; includes theoretical and applied experience in community dance practice. Offered Fall.

**Prerequisite:** DNC 3810 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Dance or Dance Honors.

**DNC 5560 Choreography III Cr. 2**

Continuation of DNC 3500; more advanced experience in choreographic forms and exploration of collaborative and technological approaches to choreography; part of Digital Dance Literacy curriculum. Offered Fall.

**Prerequisite:** DNC 2500 with a minimum grade of C- and DNC 3500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Fees:** \$30

**Repeatable for 6 Credits**

**DNC 5600 Contact Improvisation and Partnering Cr. 2**

Exploration of weight sharing, supporting and use of momentum in dance; equal emphasis on choreographic and performance applications. Offered Winter.

**Prerequisite:** DNC 2460 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students with a major, minor, or concentration in Dance or Dance Honors.

**Fees:** \$50

**DNC 5810 Teaching Creative Dance for Children Cr. 3**

Approaches to creative dance experiences for children stressing the development of aesthetic and kinesthetic awareness. Focus on comprehensive arts and curriculum related materials. Offered Fall.

**DNC 5830 Field Work in Creative Dance Cr. 2-8**

Supervised professional study in field settings. Offered Every Term.

**Prerequisite:** DNC 5810 with a minimum grade of C-

**DNC 5990 Independent Study in Dance Cr. 1-4**

Independent work in dance under faculty guidance. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors.

**Repeatable for 12 Credits**

**DNC 5993 Writing Intensive Course in Dance Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a course designated as a corequisite. See Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required of all majors. Offered Every Term.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and (DNC 2300 (may be taken concurrently), DNC 2310 (may be taken concurrently), DNC 3310 (may be taken concurrently), DNC 3810 (may be taken concurrently), or DNC 4910 (may be taken concurrently))

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**DNC 5995 Dance Education Teacher Standards Cr. 3**

Study of Professional Teaching Standards in Dance Arts (PTSDA), culminating in student documentation in evidence-based portfolio. Offered Winter.

**Prerequisites:** DNC 4910 with a minimum grade of C-

**DNC 5996 Senior Capstone Research Cr. 1-2**

Group and solo choreography, concert production, publicity and promotion; research component includes digital dance portfolio. Offered Every Term.

**Prerequisite:** DNC 3500 with a minimum grade of C-

**Fees:** \$50

**Equivalent:** DNC 5560

**Repeatable for 3 Credits**

**DNC 5997 Departmental Honors Thesis Cr. 3**

Group and solo choreography, concert production, publicity and promotion; research component includes digital dance portfolio. Offered Winter.

**Prerequisite:** DNC 3500 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to students with a major in Dance Honors; enrollment is limited to Undergraduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**DNC 5998 Professions Capstone Research Cr. 3**

Advanced inquiry and study of dance professions in applied settings within an approved internship or fieldwork context. Serves as capstone experience for BS dance majors. Offered Winter.

**Prerequisite:** DNC 5910 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Dance or Dance Honors; enrollment limited to students in a Bachelor of Science degree.

## DR - Dispute Resolution

**DR 6120 Human Diversity and Human Conflict Cr. 3**

Relationship of human differences and conflict, and ways to nonviolently confront and work with them; differences as defined by ethnicity, race, gender, class, age, etc. Offered Winter.

**DR 7100 Roots of Social Conflict Cr. 3**

Background and immediate causes of social conflict, from interpersonal to national to international settings, from ethnic to gender conflict; review of destructive and constructive aspects of conflict. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **DR 7210 Workplace Negotiations Cr. 3**

The purpose of this course is to examine the process of negotiations. It focuses on the skills, strategies, and techniques behind effective negotiating. The course content is applicable to a broad spectrum of work- or business-related relationship challenges faced by managers and professionals. This course embraces an active experiential approach to learning in an effort to bridge the theoretical and pragmatic aspects of negotiations. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** MGT 7780

### **DR 7220 Concepts and Processes of Dispute Resolution II: Neutral Intervention Theory and Practice Cr. 3**

Dispute resolution growth and methods; mediation, facilitation, conciliation, fact-finding, arbitration; hybrids; dispute resolution institutions and practitioners. Offered Winter.

**Prerequisite:** MGT 7780 with a minimum grade of C or DR 7210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

### **DR 7310 Practicum in Dispute Resolution Cr. 3**

This course was designed to teach students the skills required as third party neutrals (mediators) in the facilitative mediation process. The curriculum includes discussion and lectures on other alternative dispute resolution (ADR) processes, but the main focus of the class will be facilitative mediation. Role play opportunities, observation, and practice experience will be provided as part of the class in order to provide students opportunity to work on practical skills in addition to learning mediation theory. Elements of the subject matter taught include the nature of conflict, how mediation fits within the ADR structure, understanding values and relationships embedded within the dispute resolution process, ethical standards of practice, mediation techniques, role and task of the mediator, and stages of the mediation process. Offered Yearly.

**Prerequisite:** DR 7210 with a minimum grade of C and DR 7220 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**Fees:** \$225

**Equivalent:** LEX 7660

### **DR 7890 Final Seminar in Dispute Resolution Cr. 3**

Capstone seminar for Dispute Resolution program. Critical issues and assumptions in the practice and research spheres. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **DR 7990 Directed Study in Dispute Resolution Cr. 1-4**

Advanced independent readings and writing under supervision of graduate faculty member, in areas of special interest. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **DSA - Data Science and Analytics**

### **DSA 6000 Data Science and Analytics Cr. 3**

Basic data science and analytics concepts covered through case studies, success stories, and a semester project that cuts across all course modules. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

### **DSA 6100 Statistical Learning for Data Science and Analytics Cr. 3**

A fundamental course covering statistical learning techniques required for data science and analytics applications through methods, case studies, and a semester project that cuts across all course modules. This course focuses on both statistical learning methods and the life-cycle of a statistics-driven data science and analytics project. Students will be exposed to a variety of tools and technologies. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

**Fees:** \$50

### **DSA 6200 Operations Research Cr. 3**

Mathematical optimization models that come into play in data science and analytics applications covered through case studies and a semester project. Heuristic solution approaches will also be addressed along with sensitivity analysis techniques. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

### **DSA 6300 Decision Analysis and Simulation Cr. 3**

Coherent approach to decision making, developing rules of thought to transform complex decisions into simpler decision situations covered through case studies, success stories, and a semester project that cuts across all course modules. Discusses role of discrete-event simulation for improving decision support. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

### **DSA 7500 Data Science and Analytics Practicum Cr. 6**

Apply theoretical knowledge and skills acquired throughout the Data Science and Business Analytics MS program to a challenging project involving real-world business problems/opportunities and data analytics in a reliable, scalable, distributed computing environment for optimal outcomes. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics; enrollment is limited to Graduate level students.

**Fees:** \$50

**Equivalent:** DSB 7500, DSE 7500, STA 7800

## **DSB - Data Science for Business**

### **DSB 6000 Data Science Strategy & Leadership Cr. 3**

Provides an understanding of how organizations can leverage data science and analytics to gain competitive advantage and how to use the data to align with a company's mission and goals. Students will learn how organizations derive business value/impact, and return on investment, and the importance of interpreting and communicating the business case. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

### **DSB 6100 Marketing Analytics Cr. 3**

Application and synthesis of marketing methods and modeling approaches to design, analyze, and optimize digital marketing campaigns and to understand customer segments, customer life cycles, and lifetime values. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

**DSB 6200 Manufacturing & Supply Chain Analytics Cr. 3**

Discussion of the strategic and tactical issues surrounding the design and operation of supply chains through effective information collection, sharing, and collaboration, an understanding of applied analytical tools and methods that can be used to make better supply chain decisions and practical application of supply chain advanced planning and optimization solutions. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

**DSB 6300 Social and Collaboration Networks Cr. 3**

Leveraging data science tools & technologies for network analysis with practical applications to support and provide a structure for fact-based decision making for individuals working to gain insight into complex organizational problems. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

**DSB 7500 Data Science and Analytics Practicum Cr. 6**

Apply theoretical knowledge and skills acquired throughout the Data Science and Business Analytics MS program to a challenging project involving real-world business problems/opportunities and data analytics in a reliable, scalable, distributed computing environment for optimal outcomes. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics; enrollment is limited to Graduate level students.

**Equivalent:** DSA 7500, DSE 7500, STA 7800

## DSE - Data Science for Engineering

**DSE 5070 Introduction to Data Computing and Programming Cr. 3**

Not for CSC major credit. Background in calculus and linear algebra is necessary. This course introduces students to the foundation of data computing problem solving using programming languages of Python and R. It provides students with skills that will enable them to make productive use of “data science” techniques to model and interpret data. The course covers the following topics: 1) Basic concepts of probability and statistics; 2) Python and R basics; 3) Data pre-processing, modeling, and visualizing with Python/R. Offered Yearly.

**DSE 6000 Computing Platforms for Data Science Cr. 3**

Covers an overview of various computing platforms for developing, deploying, configuring a wide range of data science applications for different domains. The programming models, characteristics of supported workload, and management of performance, cost and scalability will be compared side by side. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

**DSE 6100 Data Modeling and Management Cr. 3**

Covers both traditional data modeling and big data modeling from conceptual design, logical-to-physical mapping, to physical schema optimization. Provenance management, which concerns about the lineage and history of a data product, is important for the repeatability of data analysis. The course will present various concepts of provenance and its relationships to data quality and trust. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

**DSE 6200 Modern Databases Cr. 3**

Covers an overview of databases, tools, and computing platforms. One focus is basic SQL, NoSQL, and NewSQL programming skills and a comparison of their cons and pros. In particular, the students will learn the criteria to choose a database system, either SQL or NoSQL, based on the requirements of an application domain. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

**DSE 6300 Data Science Applications Development Cr. 3**

Focuses on the software engineering cycle of developing a comprehensive data science application. Students will have the freedom to choose a computing platform, or a NoSQL database as the underlying infrastructure for developing a data science application. Students will also choose a particular domain and problem in which one needs to address one of the big data challenges: volume, velocity, or variety. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics.

**DSE 7500 Data Science and Analytics Practicum Cr. 6**

Apply theoretical knowledge and skills acquired throughout the Data Science and Business Analytics MS program to a challenging project involving real-world business problems/opportunities and data analytics in a reliable, scalable, distributed computing environment for optimal outcomes. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics; enrollment is limited to Graduate level students.

**Equivalent:** DSA 7500, DSB 7500, STA 7800

## ECE - Electrical and Computer Engineering

**ECE 2050 Object-Oriented Programming for Electrical and Computer Engineering Cr. 3**

Rigorous project-based, object-oriented programming course in C++ for ECE with an overview of computer engineering and systems. Covered topics include: problem-solving principles; object-oriented programming (classes and objects, control statements, functions, pointers, arrays, vectors, inheritance, polymorphism, exception handling, file processing, dynamic memory allocation); software engineering principles; basic data structures and algorithms: linked lists, recursion, sorting, and basic analysis of algorithms. Offered Fall, Winter.

**Prerequisites:** MAT 2010 with a minimum grade of C-

**ECE 2610 Digital Logic Design Cr. 4**

Topics include: data representation in digital computer; boolean algebra; logic gates; minimization and implementation of boolean functions; arithmetic circuits; combinational circuits; sequential circuits: latches and flip-flops; counters; finite state machines; memories; and Verilog programming. Laboratory experiments provide hands-on experience using state-of-the-art FGA setup to simulate, implement, and test combinational and sequential logic circuits. Offered Every Term.

**Prerequisites:** (CSC 2000 with a minimum grade of C- (may be taken concurrently) or ECE 2050 with a minimum grade of C- (may be taken concurrently)) and (PHY 2185 with a minimum grade of C- (may be taken concurrently) or PHY 2180 with a minimum grade of C- (may be taken concurrently))

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$10



**ECE 3040 Numerical Methods for Engineers Cr. 3**

Developing numerical algorithms to provide solutions to engineering problems. Derivation of numerical algorithms and investigation of their stability, accuracy, efficiency and scalability. Programming numerical algorithms in Matlab. Topics include: Machine Round-off error, truncation error, root finding, solution of systems of linear and nonlinear algebraic equations, Taylor and Chebyshev series and rational function approximation, interpolation, regression, numerical differentiation, numerical integration, numerical solution of ordinary differential equations, and Monte Carlo methods. Offered Every Term.

**Prerequisites:** BE 1200 with a minimum grade of C-, BE 1500 with a minimum grade of C-, MAT 2030 with a minimum grade of C-, and (MAT 2150 with a minimum grade of C- (may be taken concurrently) or (MAT 2250 with a minimum grade of C- (may be taken concurrently) and MAT 2350 with a minimum grade of C- (may be taken concurrently)))

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**Fees:** \$15

**ECE 3300 Introduction to Electrical Circuits Cr. 4**

Electrical quantities and waveforms; resistance and Ohm's law; networks and Kirchhoff's laws; network equivalents; nodal and mesh analysis; Thevenin's theorem and other network theorems. First- and second-order systems. Offered Every Term.

**Prerequisites:** (PHY 2185 with a minimum grade of C- or PHY 2180 with a minimum grade of C-) and (MAT 2150 with a minimum grade of C- (may be taken concurrently) or (MAT 2250 with a minimum grade of C- (may be taken concurrently) and MAT 2350 with a minimum grade of C- (may be taken concurrently)))

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$25

**ECE 3320 Introduction to Electrical Circuits Cr. 4**

Electrical signals and waveforms; resistance and Ohm's law; networks and Kirchhoff's laws; network equivalents; nodal and mesh analysis; Thevenin's theorem; energy storage systems; Introduction to sinusoidal steady-state response; complex frequency concepts; Frequency responses. No credit towards B.S. EE degree. Offered Yearly.

**Prerequisites:** (PHY 2185 with a minimum grade of C- or PHY 2180 with a minimum grade of C-) and MAT 2150 with a minimum grade of C- (may be taken concurrently)

**ECE 3330 Electrical Circuits II Cr. 3**

Sinusoidal steady-state response; three-phase systems; complex frequency concepts; frequency responses; resonant and coupled circuits; application of Fourier transforms and Laplace transform to electrical circuits. Offered Every Term.

**Prerequisites:** (MAT 2150 with a minimum grade of C- or (MAT 2250 with a minimum grade of C- and MAT 2350 with a minimum grade of C-)) and ECE 3300 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 3570 Electronics Cr. 4**

DC and small signal analysis of diodes, MOSFETs, and BJT circuits; operational amplifiers, single-stage amplifiers, differential pair, gain, input resistance, output resistance, and bandwidth of amplifiers. Offered Every Term.

**Prerequisites:** ECE 3300 with a minimum grade of C- and ECE 3330 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$15

**ECE 3620 Introduction to Microcomputers Cr. 4**

Basics of digital systems, number systems, functional blocks of microcomputers, assembly language and machine code, applications of microcomputers and experimental demonstrations. Introduction to digital logic. Offered Every Term.

**Prerequisites:** BE 1200 with a minimum grade of C- and (ECE 2610 with a minimum grade of C- or ECE 3610 with a minimum grade of C-)

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**Fees:** \$25

**ECE 4050 Algorithms and Data Structures Cr. 3**

Introduction to problem solving methods and algorithm development; data abstraction for structures such as stacks, queues, linked lists, trees, and graphs; searching and sorting algorithms and their analysis. Offered Yearly.

**Prerequisites:** (CSC 2000 with a minimum grade of C- or ECE 2050 with a minimum grade of C-) and MAT 2860 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4330 Linear Systems and Signals Cr. 4**

Content includes: continuous-time and discrete-time linear systems and signals; properties of linear systems; classical analysis methods and convolution; system analysis method for zero-state and zero-input response; Laplace transform and its application to linear system analysis; Fourier series expansion of periodic signals; Fourier transform and the steady-state response; application to analog filters, control and communication systems; solution of linear difference equations; z-transform analysis method; sampling theory; discrete-time Fourier transform and its application in digital filter design. Offered Every Term.

**Prerequisites:** ECE 3330 with a minimum grade of C- and (ECE 3040 with a minimum grade of C- (may be taken concurrently) or BE 2550 with a minimum grade of C- (may be taken concurrently))

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4331 Systems and Signals Laboratory Cr. 2**

Experiments cover signal generation, signal manipulations and signal measurements, electronic oscillators, steady-state, zero-state and zero-input responses of linear circuits, harmonic sinusoidal content (Fourier Series) of periodic signals, low-pass, high-pass, band-pass and notch filter circuits, network functions, solution of differential equations using operational amplifier circuits, amplitude modulation and demodulation of speech signals, signal sampling and reconstruction. Offered Fall, Winter.

**Prerequisites:** ECE 4330 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**ECE 4340 Microcomputer-Based Instrumentation Laboratory Cr. 2**

Multipurpose personal-computer-based approach to real time instrumentation. Current interfacing and software used for data acquisition, transmission, analysis and report writing. Offered Every Term.

**Prerequisites:** (ECE 2610 with a minimum grade of C- or ECE 3610 with a minimum grade of C-), ECE 3570 with a minimum grade of C-, and ECE 3330 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$10

**ECE 4470 Control Systems I Cr. 3**

System representations; feedback characteristics; time-domain characteristics; Routh-Hurwitz criteria; Root Locus Plots; Nyquist criteria, Bode plots; PID, controller design. Offered Every Term.

**Prerequisite:** ECE 4330 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4570 Fundamentals of Microelectronic Devices Cr. 3**

Aspects of electrical properties of semiconductors, the physical electronics of P-N junction, bipolar, field effect transistors, and device fabrication technology essential to understanding semiconductor active devices and integrated circuits. Introduction to the behavior of semiconductor and electronics devices. Offered Every Term.

**Prerequisites:** ECE 3300 with a minimum grade of C- and (MAT 2150 with a minimum grade of C- or (MAT 2250 with a minimum grade of C- and MAT 2350 with a minimum grade of C-))

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4600 Capstone Design I Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency Design principles, subsystems of microcontrollers; designing products using microcontrollers, sensors and actuators. Offered Every Term.

**Prerequisite:** ENG 3050 with a minimum grade of C- and ECE 3620 with a minimum grade of C- and ECE 4330 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4680 Computer Architecture Cr. 3**

An introduction to computer architecture. Instruction set architecture; performance analysis of computer systems; basic processor design and implementation techniques; pipelined processor design; design of the control unit, memory hierarchy and cache design; I/O. Offered Yearly.

**Prerequisites:** BE 2100 with a minimum grade of C-, ECE 2610 with a minimum grade of C-, and ECE 3620 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4700 Introduction to Communication Theory Cr. 4**

Basic information transmission concepts. Spectral analysis.

Transmission through linear networks. Sampling principles. Digital and analog communication signals and systems. The effect of noise in communication systems. Elementary decision theory. Offered Every Term.

**Prerequisite:** (BE 2100 with a minimum grade of C- or BE 3220 with a minimum grade of C-) and ECE 4330 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4800 Electromagnetic Fields and Waves I Cr. 4**

Fundamentals of electromagnetic engineering, static electric and magnetic fields using vector analysis and fields of steady currents, Maxwell's equations and boundary value problems. Basic principles of plane waves, transmission lines and radiation. Offered Every Term.

**Prerequisite:** ECE 3330 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4850 Engineering Optics Cr. 4**

Topics include: lightwave fundamentals, optical sources and detectors, optical fibers and waveguides, optical instrumentation, optical sensors for self-driving vehicles and robotics, applications optical devices and systems. Offered Yearly.

**Prerequisite:** ECE 3330 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**ECE 4990 Directed Study Cr. 1-4**

Supervised study and instruction in a field selected by the student. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Repeatable for 4 Credits**

**ECE 5100 Quantitative Physiology Cr. 4**

Basic principles of human physiology presented from the engineering perspective. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by mathematical models where feasible. Offered Fall, Winter.

**Equivalent:** BME 5010, CHE 5100, ME 5100

**ECE 5280 Introduction to Cyber-Physical Systems Cr. 3**

Topics include: modeling, design, analysis, and implementation of cyber-physical systems; dynamic behavior modeling, state machine composition, and concurrent computation; sensors and actuators; embedded systems and networks; feedback control systems; temporal logic and model checking. Offered Yearly.

**Prerequisites:** CSC 3100 with a minimum grade of C- and CSC 3110 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** CSC 5280

**ECE 5330 Modeling and Control of Power Electronics and Electric Vehicle Powertrains Cr. 3**

Basic methodologies for modeling, control system design of renewable power sources and power electronics systems. Offered Fall.

**Prerequisites:** ECE 4470 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students; enrollment limited to students in the College of Engineering.

**ECE 5340 Advanced Energy Storage Systems for Electrification of Vehicles Cr. 3**

The objective of this course is to learn fundamentals of energy storage systems for electric-based transportation and to provide basic knowledge in the multidisciplinary field of energy storage devices and their applications for land, space and marine vehicles. The focus of the course will be on advanced batteries, supercapacitors, and fuel cells for transpiration applications; battery sizing and integration to various land-marine-space vehicles; and the fundamentals of battery management systems including various methodologies in electrical control and thermal management modes. Offered Intermittently.

**Prerequisites:** PHY 2185 with a minimum grade of C

**ECE 5350 Alternative Energy Sources and Conversions Cr. 3**

Covers the fundamentals of alternative energy sources and conversion of these sources to electrical energy. The focus will be on solar and wind energy sources, covering design and operation of photovoltaic cells, solar thermal technologies, and design and operation of wind towers and wind farms. Other topics include: principle operations of geothermal energy, nuclear power plants, hydro-power, tidal and ocean waves and various methods of capturing and transforming these energy resources to electricity. Offered Intermittently.

**Prerequisites:** PHY 2185 with a minimum grade of C

**ECE 5410 Power Electronics and Control Cr. 4**

Control of electric energy using power electronic semiconductor devices; mathematical analysis of circuits containing these devices; design, modeling and control of power converters; applications of power electronic converters. Offered Spring/Summer.

**Prerequisites:** ECE 4330 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** EVE 5410

**ECE 5415 Smart Grid and Smart Systems Cr. 3**

This course provides a comprehensive introduction to the multi-disciplinary field of smart grid and smart systems. It covers the application of artificial intelligence (AI) in the control and optimization of these systems. The first part of the course focuses on smart grid topics, including smart grid energy management and control, distributed energy resources, and demand response. The second part introduces several key smart systems used in today's industry, such as microgrids, smart buildings and smart homes. The principles underlying operation and control of these systems are introduced using basic electrical engineering knowledge. Offered Fall, Winter.

**Prerequisites:** ECE 3300 with a minimum grade of C-

**ECE 5425 Robotic Systems I Cr. 4**

Introduction to robot kinematics and control. Computational algorithms for robot movement, sensor fusion, and intelligent behavior, which are needed to build a system that performs actions and interacts with its environment. Offered Fall.

**Prerequisites:** BE 2550 with a minimum grade of C-, BE 1500 with a minimum grade of C-, BME 5020 with a minimum grade of C-, or ECE 3040 with a minimum grade of C-

**Equivalent:** BME 5425

**ECE 5430 Electric Energy Systems Engineering Cr. 3**

Transmission capacity, load characteristics, reactive power compensation. Energy system component analysis and modeling. Steady-state analysis, load-flow problem and algorithms. Balanced fault analysis, symmetrical components and unbalanced fault analysis, and power system protection. Offered Intermittently.

**Prerequisites:** ECE 4330 with a minimum grade of C-

**ECE 5440 Computer-Controlled Systems Cr. 3**

Introduction to z-transform and sampling theory. Digital controller design using both transfer function techniques and state space methods.

Implementation aspects of computer-controlled systems. Offered Yearly.

**Prerequisites:** ECE 4470 with a minimum grade of C-, CHE 4600 with a minimum grade of C-, or ME 5540 with a minimum grade of C-

**ECE 5460 Stochastic Processes in Engineering Cr. 4**

Elements of probability theory. Random variables. Random sequences. Convergence concepts, limit theorems and sampling. Gaussain processes and Brownian motion. Martingales and Markov Processes. Frequency-domain analysis. White noise representations. Sampling Theorem. Wiener Filtering. Recursive Filtering. Linear and nonlinear differential systems. Likelihood ratios and applications. Offered Every Other Year.

**Prerequisites:** (IE 3220 with a minimum grade of C- and 1 of (ECE 4330 or ME 5000))

**ECE 5470 Control Systems II Cr. 3**

State space representation of systems; stability and Lyapunov methods, controllability and observability of linear time-invariant systems, pole placement design using state feedback, observer design, optimal control, linear quadratic regulators, Kalman filter. Offered Yearly.

**Prerequisites:** ECE 4470 with a minimum grade of C-

**ECE 5550 Solid State Electronics Cr. 3**

Physical basis for the opto-electric properties of solids with particular emphasis on semiconductors. Basic principles associated with solid-state devices. Charge carriers and mechanisms of current flow. Extrinsic and intrinsic semiconductors. Behavior of P-N junctions, field-effect, and bipolar transistors. Computer-aided simulation of device characteristics. Course project related to contemporary topics in semiconductors. Offered Fall.

**Prerequisites:** ECE 4800 with a minimum grade of C- and ECE 4570 with a minimum grade of C-

**ECE 5560 Analysis and Design of Analog Integrated Circuits Cr. 3**

The course provides students the fundamentals in Large-Signal/Small-Signal Transistor Modeling, Single-Stage Amplifier Design, Noise, Feedback, Current Mirrors, Differential Amplifiers, Stability, and Frequency Response, Mismatch and Nonlinearity, OpAmp Design, and CAD Tool. Cadence design suite will provide state-of-the-art hands-on experience to analyze, design, and simulate analog circuits. Advanced topics, including Analog and Mixed-Signal Artificial Neural Networks. Offered Fall.

**Prerequisites:** ECE 3330 with a minimum grade of C- and ECE 3570 with a minimum grade of C-

**ECE 5575 Introduction to Micro and Nano Electro Mechanical Systems (MEMS/NEMS) Cr. 3**

General and specialized micro/nanofabrication techniques; basic sensing and actuating mechanisms (piezoresistive, piezoelectric, capacitive, electrostatic, thermal pneumatic, etc.); and design and operation of various MEMS/NEMS devices for automotive and biomedical applications; fabrication and characterization of basic MEMS structures. Offered Fall.

**Prerequisites:** ECE 4570 with a minimum grade of C-

**ECE 5580 Advanced Nanoelectronics Cr. 3**

This course will provide an overview of next generation nanoelectronic devices, with a focus on device operation principles, technology scaling trends, and manufacturing techniques. Course will start with the evolution of MOSFET technology enabled by unprecedented advances in materials, manufacturing techniques and device architecture innovations. Different transistor technologies (i.e. HEMT, TFET) and novel electronic materials beyond Si (i.e. III-Vs, 2D materials, Carbon Nanotubes) will be covered. Following the overview of different memory device technologies, the focus will be shifted to novel computing paradigms. Device technologies that enable neuromorphic and quantum computing, associated fabrication challenges and innovative computation algorithms will be reviewed. Offered Winter.

**ECE 5610 Introduction to Parallel and Distributed Systems Cr. 3**

Fundamentals of parallel and distributed systems. Programming experience in both computing environments. Offered Yearly.

**ECE 5620 Embedded System Design Cr. 4**

Microcontroller architecture and its subsystems. Wired and wireless protocols for vehicular networking applications. Design and implementation of real-time embedded systems. Offered Every Term.

**Prerequisites:** ECE 3620 with a minimum grade of C-

**ECE 5650 Computer Networking and Network Programming Cr. 3**

Overview of networks and the Internet, the application layer, socket programming, the transport Layer, the network Layer, the link Layer: links, access networks, and LANs. Introduction to Software-Defined networking, OpenFlow, and wireless and mobile networks. Projects provide students with hands-on experience in developing network applications. Labs provides students with hands-on experience with network layers and protocols. Offered Every Term.

**Prerequisites:** ECE 4050 with a minimum grade of C-

**ECE 5675 Sensors and Sensor Instrumentation Cr. 3**

Provides students both theoretical background and hands-on skills of sensors and sensor instrumentation, and to prepare students for researches and careers involving sensors and instrumentation. The topics include operating principles of typical sensors, sensing mechanisms (piezoresistive, piezoelectric, capacitive, etc.); sensor instrumentation, amplifiers, noise analysis, and frequency response of readout circuits. Offered Winter.

**Prerequisites:** ECE 3570 with a minimum grade of C-

**ECE 5680 Computer-Aided Logical Design and FPGAs Cr. 4**

Topics include: review of digital design; advanced applications of Boolean algebra techniques; Computer-Aided Logical Design for large Boolean functions and simplification; threshold function; linear sequential machines; design using Verilog and FPGAs; introduction to cadence. Offered Winter.

**Prerequisites:** ECE 4680 with a minimum grade of C-

**ECE 5690 Introduction to Digital Image Processing Cr. 4**

Provide college engineering seniors and first-year graduate students with introductory preparation in mathematical analysis, vectors, matrices, probability, statistics, sequences and series, and computer programming. Includes concepts of digital image processing from an operational perspective with good exposure to theory, accessibility of DIP to engineering, and a detailed review of current techniques. Offered Fall.

**Prerequisites:** ECE 4050 with a minimum grade of C-, ECE 4330 with a minimum grade of C-, and BE 2100 with a minimum grade of C-

**ECE 5700 Digital Communications Cr. 4**

Digital modulators and demodulators, M-ary PSK, M-ary FSK, optimal receiver for AWGN channel. correlator receiver, matched filter receiver, analysis of probability of bit errors for digital communication systems, Shannon limit, simulation of digital communication system. Offered Intermittently.

**Prerequisites:** ECE 4700 with a minimum grade of C-

**ECE 5770 Digital Signal Processing Cr. 4**

Analysis of discrete signals and systems. Applications to digital filtering, active filters, digital communication and encoding. Offered Yearly.

**Prerequisites:** ECE 4700 with a minimum grade of C-

**ECE 5870 Optical Communication Networks Cr. 4**

Laser and detectors; modulation and demodulation; optical transmitters and receivers; optical filters; optical amplifiers; architecture and network control; multi-access networks; FDDI networks, SONET/SDH, ATM, system performance. Offered Yearly.

**Prerequisites:** ECE 4700 with a minimum grade of C- and ECE 4850 with a minimum grade of C-

**ECE 5880 Introduction to Microwave Engineering Cr. 4**

Introduces students to microwave engineering and prepares them for careers in wireless communications, radars and remote sensing. Topics that will be covered include microstrip lines, coplanar waveguides, scattering parameters, impedance matching, microwave filters, power dividers and directional couplers, nonreciprocal devices, mixers and amplifiers. Offered Yearly.

**Prerequisites:** ECE 4800 with a minimum grade of C- (may be taken concurrently)

**ECE 5960 Introduction to VLSI Systems Cr. 4**

A very large scale integrated circuit component and design procedures. MOS fabrication, MOS gates, circuit architecture, device design, manufacturing and interface techniques. Offered Fall.

**Prerequisites:** ECE 2610 with a minimum grade of C-

**Fees:** \$30

**ECE 5990 Directed Study Cr. 1-3**

Supervised study and instruction in the field selected by the student. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Electrical & Computer Engineer.

**Repeatable for 3 Credits**

**ECE 5995 Special Topics in Electrical and Computer Engineering I Cr. 1-4**

Special subject matter in electrical and computer engineering. Topics to be announced in Schedule of Classes . Offered Every Term.

**Repeatable for 8 Credits**

**ECE 6180 Biomedical Instrumentation Cr. 4**

Engineering principles of physiological measurements, signal conditioning equipment, amplifiers, recorders and transducers. Recent advances in instrumentation. Offered Winter.

**Prerequisites:** BME 5020 with a minimum grade of B- and ECE 3300 with a minimum grade of C-

**Equivalent:** BME 6480, ME 6180



**ECE 6570 Smart Sensor Technology I: Design Cr. 3**

Introduction to various types of sensors and the design of basic analog VLSI circuit building blocks. Offered Winter.

**Prerequisites:** PHY 2185 with a minimum grade of C- or PHY 2180 with a minimum grade of C-

**Equivalent:** BME 6470, PHY 6570

**ECE 6991 Industrial Internship Cr. 1-3**

Internship experience that satisfies the curricular practical training requirements. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**ECE 6992 Industrial Internship Cr. 1-3**

Internship experience that satisfies the curricular practical training requirements. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ECE 7030 Mathematical Methods in Engineering I Cr. 4**

Introduction to functional analysis. Banach and Hilbert spaces. Fixed-point and projection theorem techniques. Approximation, estimation, and optimization theory. Applications to numerical and error analysis, non-linear equations, and modeling system identification. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7100 Mathematical Modeling in Impact Biomechanics Cr. 4**

Review of models created for impact simulations. Regional impact simulation models. Human and dummy models subject to various restraint systems. Offered Intermittently.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BME 7100, IE 7100, ME 7100

**ECE 7420 Nonlinear Control Systems Cr. 3**

Provide examples of nonlinear dynamical control systems, perform system analysis using phase-portrait, and examine stability using Lyapunov's direct method and invariant set theorems (local and global stability). Introduce describing function method, feedback linearization technique, internal dynamics, and zero-dynamics. Design nonlinear robust controllers. Offered Fall.

**Prerequisite:** ECE 5470 with a minimum grade of B- or ME 6550 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ECE 7425 Robotics Systems II Cr. 4**

Project-based class to understand technology that interfaces computer engineering, software design, electronics and sensors with robotics. Advanced application areas of robotics will be covered including medical, military, space, vehicle robotics. Completion of ECE/BME 5425 Robotic Systems I is recommended prior to registering for this course. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** BME 7425

**ECE 7430 Discrete Event Systems with Machine Learning Cr. 4**

Discrete event systems and fuzzy discrete event systems; automata and fuzzy automata; supervised learning; languages and operations; supervisory control; controllability, observability, and co-observability, modular control and decentralized control, supervisor synthesis. Offered Fall.

**Prerequisites:** ECE 4330

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7440 Dynamic Systems and Optimal Control Cr. 4**

Formulation of optimal control problems. Pontryagin's maximum principle and necessary conditions for optimality, with applications. Dynamic programming; Hamilton-Jacobi equation; optimal feedback control. Offered Intermittently.

**Prerequisite:** ECE 5440 with a minimum grade of C or ECE 5470 with a minimum grade of C or ME 5550 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7500 Artificial Intelligence for Natural Language Processing Cr. 3**

Natural Language Processing (NLP) is a field in Artificial Intelligence (AI) devoted to creating computer systems that understand and produce human languages. This course will present a broad graduate-level introduction to NLP. We will focus on fundamental methods and algorithms/techniques in NLP. We will also explore several NLP applications, such as sentiment analysis, information extraction, syntactic parsing, and semantic analysis. Offered Fall.

**Prerequisites:** ECE 4050 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7530 Advanced Digital VLSI Design Cr. 4**

Topics include: review of VLSI Design processes; CADENCE tools used to simulate and generate the schematic and layout of the synthesized hardware description language codes; and chip fabrication. Offered Winter.

**Prerequisites:** ECE 5680 with a minimum grade of C and ECE 5960 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7566 Advanced Mixed Signal Integrated Circuits Cr. 3**

the course presents advanced topics in CMOS mixed signal integrated circuits including analysis and design of low power digital to analog (D/A) and analog to digital converters (A/D), comparators, sample and hold circuits, band gap references and switched-capacitor circuits. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7570 Smart Sensor Technology II: Characterization and Fabrication Cr. 4**

Integration of ongoing research in integrated technology of smart sensors. Design of smart sensor devices using computer simulation. Fabrication of smart sensor. Offered Spring/Summer.

**Prerequisite:** ECE 6570 with a minimum grade of B- or BME 6470 with a minimum grade of B- or PHY 6570 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$50

**Equivalent:** BME 7470, PHY 7580

**ECE 7610 Advanced Parallel and Distributed Systems Cr. 3**

Advanced topics in parallel and distributed computing, multicore and parallel architecture, communication, synchronization, parallel algorithms and programming, load balancing and scheduling, security. Offered Winter.

**Prerequisite:** ECE 5610 or ECE 5650

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7640 Online and Adaptive Methods for Machine Learning Cr. 3**

Introduction to state-of-the-art online learning algorithms with an emphasis on algorithm design and theoretical analysis. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7650 Scalable and Secure Internet Services and Architecture Cr. 3**

Advanced principles of distributed and cloud computing systems, Internet servers and data centers, content delivery networks, software-defined networking, Internet of things, multimedia networking, performance scalability, energy-aware resource management, security, cost-effective engineering design. Offered Winter.

**Prerequisite:** ECE 5610 with a minimum grade of C or ECE 5650 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7660 Parallel Computer Architecture Cr. 4**

Review of parallel computer architectures, including symmetric multiprocessors and scalable machines. Parallel software basics for various architectures. Fundamental issues including cache coherence, interconnection network, and synchronization; influence of these on performance of applications. Offered Yearly.

**Prerequisite:** ECE 5610 with a minimum grade of C and ECE 5620 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7680 Advanced Digital Image Processing and Applications Cr. 4**

Advanced aspects, algorithms, methods in digital image processing and their corresponding applications in different fields. Students develop comprehensive skills and knowledge in digital image processing. Offered Yearly.

**Prerequisite:** ECE 5690 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7690 Fuzzy Systems Cr. 3**

From basic fuzzy set theory to advanced topics such as neuro-fuzzy systems. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7700 Statistical Communication Theory Cr. 4**

Decision theory, binary decisions with single and multiple observations, signals in additive Gaussian noise, sequential decision theory, estimation theory, Kalman filtering. Offered Yearly.

**Prerequisite:** ECE 5700 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7730 Telematics Cr. 4**

Introduction to automotive telematics, mobile communication channels, error correction, automatic crash response, vehicle diagnostics, vehicle tracking, vehicle safety, navigation, and current topics in telematics. Offered Winter.

**Prerequisites:** ECE 5700 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7820 Electricity Market Cr. 3**

Advanced electric energy system economics. Principles of energy system modeling and analysis. Electric energy industry structure and the economic issues concerning electricity generation, transmission, and distribution. Emphasis on renewable energy and smart grids, and consumer empowerment as market architecture drivers. Offered Fall.

**Prerequisites:** ECE 3330 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7850 Photonics Cr. 4**

Topics include: light-matter interaction using the concepts of rays, electromagnetic waves, and quanta of light; electronic and photonic properties of materials; photonic devices for applications in communication, signal processing, data storage, and sensing; photonic solutions for quantum technologies in cryptography, communication, and computing. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7860 Operation and Control of Modern Power Systems Cr. 3**

Topics include power system optimal dispatch; power system stability analysis and control; smart grid technologies and applications, covering modeling and control of renewable energy systems; distributed generation; microgrid architecture and control; demand response; energy storage for power grids; grid interface and integration of renewable sources; and electricity market fundamentals. Offered Fall.

**Prerequisite:** ECE 5430 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 7990 Directed Study Cr. 1-8**

Supervised study and instruction in an advanced topic. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ECE 7995 Special Topics in Electrical and Computer Engineering II Cr. 1-4**

A consideration of special subject matter in electrical and computer engineering. Topics to be announced in Schedule of Classes. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ECE 7996 Research Cr. 1-8**

Design, investigation and experimental work on some phase of electrical and computer engineering. Written report required. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ECE 8999 Master's Thesis Research and Direction Cr. 1-6**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ECE 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ECE 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ECE 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ECE 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ECE 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECE 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

#### **ECE 9997 Doctoral Seminar Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

## **ECO - Economics**

#### **ECO 1000 Survey of Economics Cr. 4**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences  
Scope of economics and the task of the economist in modern society; the market economy, its evolution and development; non-market economies; economic problems and prospects in the contemporary world. Not for ECO major or minor credit. Offered Every Term.

#### **ECO 1400 Economic Inequality Cr. 4**

Provides students with a broad survey of economic inequality. Covers conceptual debates on inequality, starting with varying theories that explain inequality. A unit will focus on inequality in the United States and in industrially developed nations, and a unit will focus on the tension between global inequalities as well as the emerging global middle class. Examines the divergent outcomes for the middle and working class in industrially developed (wealthy) nations as well as the growing global middle class, especially from emerging nations such as China and India. Offered Fall, Winter.

#### **ECO 1600 Introduction to Economic Thought Cr. 4**

Provides students with a broad historical survey of the field of economics, starting from the pre-industrial era. The course looks at economic ideas starting from the classical thinkers (Smith, Bentham, Malthus, Ricardo, Mill, and Marx) to the emergence of modern classical economics and institutional (Marshall and Veblen). It completes the survey by examining the development of macroeconomics of Keynes and his critics (Hayek, Schumpeter, and Friedman) and presents the modern contest of ideas, culminating with the economic consequences of the 2008 Financial Crisis. Offered Fall, Winter.

#### **ECO 2010 Principles of Microeconomics Cr. 4**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences  
Supply, demand, price at the level of the firm and industry; business institutions and their operation; determinants of wage and salary levels, interest rates, rent, profits, income distribution; public policy in relation to business and labor. This course satisfies Society of Actuaries Validation by Educational Experience (VEE) in Economics when taken with ECO 2020 with a B- or better in each course. Offered Every Term.

#### **ECO 2020 Principles of Macroeconomics Cr. 4**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences  
Determination of national income, consumption and saving, and investment; money, banking and the Federal Reserve; inflation and unemployment; monetary and fiscal policy; economic growth and productivity; the international sector. This course satisfies Society of Actuaries Validation by Educational Experience (VEE) in Economics when taken with ECO 2010 with a B- or better in each course. Offered Every Term.

#### **ECO 2550 U.S. Health Care: Policy and Economics Cr. 4**

**Satisfies General Education Requirement:** Social Inquiry

Provide students with a basic understanding of economics as applied to health, health care, and health policy. Covers economic factors relating to consumer, producer, and government behavior. Emphasis will be placed on analyzing issues currently affecting the U.S. health care system, using an international perspective to inform policy recommendations. Offered Fall, Winter.

#### **ECO 3990 Directed Study Cr. 1**

For the student who shows evidence of ability and interest in economic study and who desires opportunity for advanced reading in a special field. Arrange with advisor. Offered Every Term.

**Prerequisites:** ECO 1000-ZZZZ with a minimum grade of B

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Economics or Economics Honors; enrollment is limited to students in the Department of Economics.

**Repeatable for 2 Credits**

#### **ECO 4991 Research in Economics Cr. 3-12**

Economic research on an appropriate topic of the student's choice, conducted under faculty supervision. Does not count toward 32-credit requirement for the ECO major. Offered Every Term.

**Prerequisites:** ECO 1000-ZZZZ with a minimum grade of B

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Economics or Economics Honors; enrollment is limited to students in the Department of Economics.

**Repeatable for 12 Credits**

#### **ECO 4997 Senior Honors Research Cr. 4**

Individually arranged meetings with faculty member to discuss research methodology and readings in areas of research selected by instructor. A senior honors essay of a length proportionate to the selected topic will be required. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Economics Honors; enrollment is limited to Undergraduate level students; enrollment limited to students in a Bachelor of Arts degree; enrollment is limited to students in the Department of Economics.

#### **ECO 5000 Intermediate Microeconomics Cr. 4**

Theory of the firm and consumer. Analysis of a price system as a means to efficient allocation of productive resources. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ECO 2010 with a minimum grade of C and (MAT 1800 with a minimum grade of C, MAT 2010-6999 with a minimum grade of C, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4)

#### **ECO 5020 Fundamentals of Economic Analysis I Cr. 4**

This course assumes good knowledge of first semester calculus, and teaches additional mathematics necessary for Ph.D. study in economics, and (to a lesser extent) teaches some economic implications; course content includes: matrices, vectors and linear algebra; partial and total derivatives; scalar and vector functions; Jacobian derivative matrices and determinants; implicit function theorem; derivatives of implicit functions with one or more endogenous variables; unconstrained maximization with two or more variables; Lagrangians and constrained maximization; envelope theorem; differential and difference equations, and systems of differential and difference equations. Offered for undergraduate credit only. Offered Fall.

**Prerequisites:** ECO 5000 with a minimum grade of C and MAT 2010-6XXX with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

#### **ECO 5030 Microeconomic Theory Cr. 4**

Theory of choice, theory of cost and production, theory of the competitive form. Price and output in non-competitive markets, general competitive equilibrium and welfare economics. Offered Yearly.

**Prerequisites:** (MAT 2010 with a minimum grade of C- or MAT 5010 with a minimum grade of C-), MAT 2020 with a minimum grade of C-, ECO 5000 with a minimum grade of C-, and ECO 5020 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5050 Intermediate Macroeconomics Cr. 4**

Theory of national income determination. National output and income, saving and capital formation. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ECO 2020 with a minimum grade of C and (MAT 1800 with a minimum grade of C, MAT 2010-6999 with a minimum grade of C, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5100 Introductory Statistics and Econometrics Cr. 4**

Elementary probability theory, discrete and continuous probability distribution, sampling distribution, interval estimation, hypothesis testing, and estimation and inference in simple and multiple regression models. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** ECO 2010 with a minimum grade of C, ECO 2020 with a minimum grade of C, and (MAT 1800 with a minimum grade of C, MAT 2010-6999 with a minimum grade of C, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5200 Regulation and Regulated Industries Cr. 4**

Transportation economics. Regulation of transportation as an example of public control of business; the rationale for having public regulation, and the analysis of its economic effects; reform of the scope and practice of regulation; public ownership; regulation of occupational and product safety standards and environmental standards. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5210 Market Power and Economic Welfare Cr. 4**

Monopoly, oligopoly, and competition in U.S. industry; sources of market power and their effect on prices, profits, and technological progress. Case studies. Selected topics in antitrust policy. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** (MAT 1800 with a minimum grade of C, MAT 2010-6999 with a minimum grade of C, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4), ECO 2010 with a minimum grade of C, and ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5230 Environmental Economics Cr. 4**

Externalities as the cause of environmental degradation and climate change. Externality in turn results from the failure of the market to develop prices that reflect the full global cost of production and consumption. The course also pays attention to normative issues. The population over which the normative issues are defined may include animals, plants and inanimate objects. Behavioral economics, in particular, will be brought to bear on the discussion throughout the course. Offered Fall, Winter.

**Prerequisites:** ECO 1000 with a minimum grade of D- or ECO 2010 with a minimum grade of D-

**ECO 5250 Economic Analysis of Law Cr. 4**

Economic analysis of property rights, torts, contracts, criminal law, the law of business organizations and financial markets, and the law of taxation. Economic analysis of litigation; the use of economics and statistics in litigation. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5260 Economic Analysis of Law II: Applications of Statistics and Econometrics Cr. 4**

Examines applications of statistics and econometrics to legal issues that have been considered by the courts. Offered Winter.

**Prerequisites:** ((1 of (MAT 1800 with a minimum grade of C+, MAT 2010-6999 with a minimum grade of C+, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4) and ECO 2010 with a minimum grade of C+) or ECO 5100 with a minimum grade of C+)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5270 Games of Strategy Cr. 4**

Game theory studies how individuals, groups and firms make their decisions strategically when their actions affect each other. Introductory course with emphasis on applications to firms and markets. Standard concepts such as games with sequential moves, simultaneous moves, pure and mixed strategies, uncertainty, and repetition. Special topics include bargaining, strategic innovation, cooperative pricing, contract designs, incentive mechanisms, bidding, and auctions. Students do not need to know calculus to follow the lectures. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** MAT 1800 with a minimum grade of C, (MAT Permit to Reg ACT/SAT with a test score minimum of 4 and MAT 2010-6999 with a minimum grade of C), or MAT Permit to Reg ACT/SAT with a test score minimum of 4

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5300 International Trade Cr. 4**

Factors in international relations; patterns of international specialization; balance of international payments; foreign exchange; commercial policy of United States and other countries; foreign investment and economic development; international economic cooperation. Offered for undergraduate credit only. Offered Fall.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5310 International Finance Cr. 4**

Major policy issues in the field of international finance with emphasis on open economy macroeconomics. Topics include the balance of payments and the foreign exchange market; monetary and fiscal policies in open economies; the floating exchange rate system; international financial markets; and European monetary integration. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** (MAT 1800 with a minimum grade of C, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4), ECO 2020 with a minimum grade of C, and ECO 5050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5400 Labor Economics Cr. 4**

Economics of labor markets. Determinants of earnings and methods of compensation, labor supply and demand, effects of taxes and subsidies on labor supply, choices of occupation and level of schooling, promotion and turnover, employment discrimination, economics of crime and punishment, regulation of professions, unions. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Labor Studies; enrollment is limited to Undergraduate level students.

**ECO 5410 Economics of Race and Gender Cr. 4**

Theory and empirical evidence of race and gender differentials in the labor market. Topics include the difference in occupations and earnings, discrimination, poverty, and public policies. Offered for undergraduate credit only. Offered Fall.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.



**ECO 5480 Economics of Work Cr. 3**

Theoretical and empirical treatment of: labor market characteristics; labor demand and supply; issues of race, gender, and age; compensation and pay; issues of health and productivity; bargaining processes and the effects of unions; unemployment and job search; globalization. No economics major or minor credit. Offered Yearly.

**Prerequisites:** ECO 2010 with a minimum grade of C, ECO 2020 with a minimum grade of C, or ECO 1000 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BA in Labor Studies program; enrollment is limited to Undergraduate level students.

**ECO 5490 American Labor History Cr. 4**

Development of the American labor movement; its behavior in the contemporary scene. Labor's experiments with social, political, legal, and economic institutions. Comparisons with foreign labor movements. Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** HIS 5290

**ECO 5500 Public Finance Cr. 4**

Role of government in a market economy: sources of market failure; public goods and externalities; principles of taxation and expenditures; tax incidence; federal tax structure; selected government expenditure programs. Offered for undergraduate credit only. Offered Fall, Spring/Summer.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5520 State and Local Public Finance Cr. 4**

Theory and practice of state and local government taxation and expenditure. Attention devoted to State of Michigan and municipalities in Detroit metropolitan area. Topics include: government organization, voting and mobility models, property and sales taxes, user charges, grants, education expenditure, and economic development. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5550 Economics of Health Care Cr. 4**

Allocation of health care resources, with respect to demand and supply of health care. Role of hospitals, physicians, and health insurance; market imperfections and their role in the economics of health care. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** ECO 5000 with a minimum grade of C (may be taken concurrently)

**ECO 5560 Pharmaceutical Economics Cr. 4**

Introduces students to cost-effectiveness analysis and related economic tools used to determine the value of pharmaceuticals to society, tools which are increasingly being used by insurance programs to regulate access to drugs by patients. It will also cover the institutional landscape of the markets for development and sale of pharmaceuticals, with a focus on the features that have made pharmaceutical prices in the United States among the highest in the world, and policy options that are being considered to reduce these prices and that have become highly politically salient in recent years. Offered Yearly.

**Prerequisite:** ECO 5100 with a minimum grade of C or PH 3200 with a minimum grade of C or PH 3300 with a minimum grade of C or BA 2300 with a minimum grade of C or BA 3400 with a minimum grade of C or BA 6090 with a minimum grade of C or BIO 5040 with a minimum grade of C or STA 2210 with a minimum grade of C or PSY 2030 with a minimum grade of C or PSY 5100 with a minimum grade of C or SOC 3220 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5600 Introduction to Development Economics Cr. 4**

National poverty and economic growth viewed from a historical and theoretical perspective; particular emphasis on national and international policies. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5700 Money and Banking Cr. 4**

Role of the Federal Reserve System, the commercial banks, and the non-bank public (including financial intermediaries) in determining the money supply; central banking and techniques of monetary control; indicators and targets of monetary policy; and how money affects economic activity. Offered Fall, Winter.

**Prerequisites:** (MAT 1800 with a minimum grade of C, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4), ECO 2020 with a minimum grade of C, and ECO 5050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5720 Financial Economics Cr. 4**

Fundamentals of investments: investment and financial markets, theoretical models of investment theory including efficient market hypothesis (EMH) and capital asset pricing model (CAPM); characteristics and analysis of stocks, bonds, and portfolios; equity evaluation through financial statements, industry analysis, and macroeconomic analysis; and advanced topics in either derivative assets (futures and options) or international investments. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** ECO 2010 with a minimum grade of C, ECO 2020 with a minimum grade of C, ECO 5050 with a minimum grade of C, and (MAT 1800 with a minimum grade of C, MAT 2010-6999 with a minimum grade of C, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 5800 Urban and Regional Economics Cr. 4**

Introduction to the economic foundations of urban problems; land use, housing, poverty, transportation, local public finance; regional industry mix, income, growth and development; the national system of cities and location of firms. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** UP 5820

**ECO 5993 Writing Intensive Course in Economics Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Every Term.

**Prerequisites:** ECO 5000-9999 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ECO 6000 Price and Allocation Theory Cr. 4**

Introduction to the theory of consumer choice and the theory of production, and other selected topics. Primarily for M.A. students and for Ph.D. students who want to review. Offered Fall.

**Prerequisite:** ECO 5000 with a minimum grade of C and MAT 2010 with a minimum grade of C

**ECO 6020 Causal Inference and Research Practice Cr. 4**

This course has two parts: causal inference and research methods. Most questions in social and biomedical sciences are causal in nature: what would happen to individuals or groups if part of their environment were changed? The course will survey a range of statistical methods for answering such questions, and show how to implement them using statistical programming software. We will draw on research in the applied econometrics literature, though these methods also apply to topics in health, education, criminal justice, law, and political science. This second part of this course will introduce students to a set of productivity-boosting software tools for research, and engage students in a discussion on setting research agendas and choosing topics that will enable students to make rigorous causal claims for their findings and embark on fulfilling research careers. The course will also provide practical tips on research workflow, writing papers, and grantwriting. Offered Yearly.

**Prerequisite:** ECO 6100 with a minimum grade of C or ECO 7100 with a minimum grade of C

**ECO 6050 Macroeconomics Cr. 4**

Determination of national income, unemployment and interest rates; theories of inflation; effectiveness of macroeconomic public policies. Primarily for M.A. students and for Ph.D. students who want to review. No credit after ECO 7050. Offered Winter.

**Prerequisite:** ECO 5050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6100 Introduction to Econometrics Cr. 4**

Basic statistics, basic probability, hypothesis testing, and bivariate and multivariate regression analysis. Estimators studied are least squares, maximum likelihood and generalized least squares. Various model specification issues addressed: omitted variables, extraneous variables, category variables, multicollinearity, heteroscedasticity, and autocorrelation. Offered Fall.

**Prerequisite:** ECO 5100 and MAT 2010

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**ECO 6200 Advanced Regulation and Regulated Industries Cr. 4**

Transportation economics. Regulation of transportation as an example of public control of business; the rationale for having public regulation, and the analysis of its economic effects; reform of the scope and practice of regulation; public ownership; regulation of occupational and product safety standards and environmental standards. No credit after ECO 5200. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6210 Advanced Market Power and Economic Welfare Cr. 4**

Monopoly, oligopoly, and competition in U.S. industry; sources of market power and their effect on prices, profits, and technological progress. Case studies. Selected topics in antitrust policy. No credit after ECO 5210. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6250 Advanced Economic Analysis of Law Cr. 4**

Economic analysis of property rights, torts, contracts, criminal law, the law of business organizations and financial markets, and the law of taxation. Economic analysis of litigation; the use of economics and statistics in litigation. Advanced mathematical analysis of selected topics. No credit after ECO 5250. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6260 Economic Analysis of Law II: Applications of Statistics and Econometrics Cr. 4**

Examines applications of statistics and econometrics to legal issues that have been considered by the courts. Offered Winter.

**Prerequisites:** (ECO 2010 with a minimum grade of C+ and MAT 1800-ZZZZ with a minimum grade of C+) or ECO 5100 with a minimum grade of C+

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6270 Advanced Games of Strategy Cr. 4**

Game theory offers a tool for strategic thinking. It can be thought of as the art of maximizing your interest while competing with others when your and others' decisions affect with one another. Over the last few decades, game theory has been developed for the purpose of understanding social phenomena. It has become the major tool used by social scientists to understand, predict and regulate strategic interaction among agents who have conflicting interests. This course consists of a fairly comprehensive introduction to the game theory, and it will cover the standard game theory with introducing the principles and the equilibrium concepts to students. Offered Yearly.

**Prerequisites:** MAT 1800 with a minimum grade of C or MAT 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6300 Advanced International Trade Cr. 4**

Factors in international relations; patterns of international specialization; balance of international payments; foreign exchange; commercial policy of United States and other countries; foreign investment and economic development; international economic cooperation. Advanced mathematical analysis of selected topics. No credit after ECO 5300. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6310 Advanced International Finance Cr. 4**

Major policy issues in the field of international finance with emphasis on open economy macroeconomics. Topics include the balance of payments and the foreign exchange market; monetary and fiscal policies in open economies; the floating exchange rate system; international financial markets; and European monetary integration. Advanced mathematical analysis of selected topics. No credit after ECO 5310. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C and ECO 5050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6400 Advanced Labor Economics Cr. 4**

Economics of labor markets. Determinants of earnings and methods of compensation, labor supply and demand, effects of taxes and subsidies on labor supply, choices of occupation and level of schooling, promotion and turnover, employment discrimination, economics of crime and punishment, regulation of professions, unions. Advanced mathematical analysis of selected topics. No credit after ECO 5400. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6415 Advanced Economics of Race and Gender Cr. 4**

Theory and empirical evidence of race and gender differentials in the labor market. Topics include the difference in occupations and earnings, discrimination, poverty, and public policies. Advanced mathematical analysis of selected topics. No credit after ECO 5410. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6420 Labor Relations and Public Policy Cr. 3**

Overview of labor force trends; U.S. unionism; management of labor relations; collective bargaining: procedure and substance; bargaining power in the private and public sectors. Comparative trends and principles in industrial relations systems of other societies also examined. Offered for graduate credit only. Offered Fall, Spring/Summer.

**Prerequisite:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6480 Advanced Economics of Work Cr. 3**

Theoretical and empirical treatment of: labor market characteristics; labor demand and supply; issues of race, gender, and age; compensation and pay; issues of health and productivity; bargaining processes and the effects of unions; unemployment and job search; globalization. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 2010 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the MA in Employ & Labor Relations program.

**ECO 6510 Advanced Public Finance Cr. 4**

Role of government in a market economy: sources of market failure—public goods and externalities; principles of taxation and expenditures; tax incidence; federal tax structure; selected government expenditure programs. Advanced mathematical analysis of selected topics. No credit after ECO 5500. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6520 Advanced State and Local Public Finance Cr. 4**

Theory and practice of state and local government taxation and expenditure. Attention devoted to State of Michigan and municipalities in Detroit metropolitan area. Topics include: government organization, voting and mobility models, property and sales taxes, user charges, grants, education expenditure, and economic development. Advanced mathematical analysis of selected topics. No credit after ECO 5520. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** UP 6750

**ECO 6550 Advanced Economics of Health Care Cr. 4**

Allocation of health care resources, with respect to demand and supply of health care. Roles of hospitals, physicians, and health insurance; market imperfections and their role in the economics of health care. Advanced mathematical analysis of selected topics. No credit after ECO 5550. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6560 Pharmaceutical Economics Cr. 4**

Introduces students to cost-effectiveness analysis and related economic tools used to determine the value of pharmaceuticals to society, tools which are increasingly being used by insurance programs to regulate access to drugs by patients. It will also cover the institutional landscape of the markets for development and sale of pharmaceuticals, with a focus on the features that have made pharmaceutical prices in the United States among the highest in the world, and policy options that are being considered to reduce these prices and that have become highly politically salient in recent years. Graduate students should have some coursework in statistics. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students.

**ECO 6600 Advanced Development Economics Cr. 4**

National poverty and economic growth viewed from a historical and theoretical perspective; particular emphasis on national and international policies. Advanced mathematical analysis of selected topics. No credit after ECO 5600. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6650 Regional, State, and Urban Economic Development: Policy and Administration Cr. 3**

Examination of regional, state, and local economic development theory, analysis, policy and administration. Offered for graduate credit only. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PS 6440, UP 6550

**ECO 6700 Advanced Money and Banking Cr. 4**

Role of the Federal Reserve System, the commercial banks, and the non-bank public (including financial intermediaries) in determining the money supply; central banking and techniques of monetary control; indicators and targets of monetary policy; and how money affects economic activity. Advanced mathematical analysis of selected topics. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 2020 with a minimum grade of C and ECO 5050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 6800 Advanced Urban and Regional Economics Cr. 4**

Introduction to the economic foundations of urban problems; land use, housing, poverty, transportation, local public finance; regional industry mix, income, growth and development; the national system of cities and location of firms. Advanced mathematical analysis of selected topics. No credit after ECO 5800. Offered for graduate credit only. Offered Yearly.

**Prerequisite:** ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 7000 Microeconomic Theory I Cr. 4**

Theory of choice; theory of cost and production; theory of the competitive firm. Price and output in non-competitive markets. General competitive equilibrium and welfare economics. Offered Winter.

**Prerequisite:** ECO 5000 with a minimum grade of C and ECO 7020 with a minimum grade of C and MAT 2010 with a minimum grade of C and MAT 2020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7010 Microeconomic Theory II Cr. 4**

Continuation of ECO 7000. Includes general equilibrium analysis and game theory. Offered Fall.

**Prerequisite:** ECO 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7020 Fundamentals of Economic Analysis I Cr. 4**

This course assumes sound knowledge of first and second semester calculus, and teaches additional mathematics necessary for Ph.D. study in economics, and covers additional mathematics necessary for Ph.D. study in mathematics, and to a lesser extent some economic implications. Course content includes: matrices, vectors and linear algebra; partial and total derivatives; scalar and vector functions; Jacobian derivative matrices and determinants; implicit function theorem; derivatives of implicit functions with one or more endogenous variables; unconstrained maximization with two or more variables; Lagrangians and constrained maximization; envelope theorem; differential and difference equations, and systems of differential and difference equations. Offered for graduate credit only. Offered Fall.

**Prerequisite:** MAT 2010 with a minimum grade of C and ECO 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7021 Fundamentals of Economic Analysis II Cr. 4**

Mathematical methods specific to macroeconomics and econometrics. Applications of matrix operations, distribution functions, estimation methods, difference equations, differential equations, inter-temporal optimization, calculus of variations, control theory. Offered Fall.

**Prerequisite:** MAT 2020 with a minimum grade of C and ECO 5000 with a minimum grade of C

**Corequisite:** ECO 7020

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7050 Macroeconomic Theory I Cr. 4**

Determination of national income, employment, interest rates and the price level; static and dynamic models; cycle and growth models; classic, Keynesian and neo-Keynesian models. Offered Winter.

**Prerequisite:** ECO 5050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7060 Macroeconomic Theory II Cr. 4**

Mathematical and statistical methods: differential and difference analysis. Intertemporal economic theory: the household, the firm, and economic growth. Overlapping generations models and the Ricardian theory of government finance. Theories of the business cycle: real business cycle models, Keynesian and New Classical theories of the business cycle. Offered Fall.

**Prerequisite:** ECO 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7100 Econometrics I Cr. 4**

Probability and statistics: moment generating functions, common families of statistical distributions, multiple random variables and properties of a random sample. Estimation and hypothesis testing: method of moments, generalized method of moments, maximum likelihood estimators, instrumental variable estimators, Bayes estimators, likelihood ratio tests, finite sample properties and asymptotic properties of OLS. Offered Fall.

**Prerequisite:** ECO 6100 with a minimum grade of C and ECO 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7110 Econometrics II Cr. 4**

Modeling and estimation: generalized least squares, panel data models (fixed effects and random effects), system of equations (endogeneity, identification), models with discrete dependent variables (probit, logit), models with limited dependent variables (truncation, censoring), stationary time-series (ARMA), vector-autoregression (VAR, VMA), non-stationary time-series (unit roots, cointegration). Offered Winter.

**Prerequisite:** ECO 7100 with a minimum grade of C or ECO 6020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7120 Econometrics III Cr. 4**

Advanced economic techniques in microeconomics and macroeconomics. In the first half of the course, emphasis on specification, estimation, interpretation, and testing of microeconomic models. The second half will cover statistical models for the analysis of economic time series data, with applications in macroeconomics and finance. Offered Yearly.

**Prerequisite:** ECO 7100 with a minimum grade of C and ECO 7110 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7200 Industrial Organization I Cr. 4**

Theories of competition and market power. Topics include concentration, scale economies, product differentiation, entry barriers, collusion, mergers, price discrimination, information, and advertising. Offered Every Other Year.

**Prerequisite:** ECO 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7210 Industrial Organization II Cr. 4**

Economic analysis of antitrust policy and public regulation of industry. Rationale for regulation and mandates of various regulatory agencies. Problems in public utility rate-making. Misallocations induced by regulation. Role of competition in regulated industries. Offered Every Other Year.

**Prerequisite:** ECO 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7400 Labor Economics and Human Resources Cr. 4**

Labor force participation and composition; factors affecting wage levels (money and real) and wage structure. Theoretical and empirical analyses of occupational choice, labor mobility, promotion, turnover, unemployment, the effects of taxation, retirement and income inequality. Offered Every Other Year.

**Prerequisite:** ECO 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7410 Economics of Human Resources Cr. 4**

Theoretical and empirical analyses of labor supply and family allocation of time; the return to education; role of general and firm-specific human capital and job mobility in wage growth over a career; race and gender differences in the labor market; intergenerational transfers and mobility. Offered Every Other Year.

**Prerequisite:** ECO 6000 with a minimum grade of C and ECO 6100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.



**ECO 7550 Economics of Health Care I Cr. 4**

Basic introduction to health care economics including allocation of health care resources, economics of information, and the role of advertising. No credit after ECO 5550. Offered Every Other Winter.

**Prerequisite:** ECO 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7560 Economics of Health Care II Cr. 4**

Particular roles of hospitals, physicians, and health insurance in the economy. Analysis of government policies. No credit after ECO 5550. Offered Every Other Year.

**Prerequisite:** ECO 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**ECO 7996 Research in Economics Cr. 1-8**

Open to qualified students who desire opportunity for research and directed study. May be conducted as seminar. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Economics; enrollment is limited to Graduate level students.

**Repeatable for 16 Credits**

**ECO 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ECO 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ECO 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ECO 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ECO 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ECO 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## ED - Education

**ED 3990 Directed Study Cr. 1-6**

Offered Every Term.

**Repeatable for 6 Credits**

**ED 4998 Education Honors Thesis Cr. 3-4**

Independent research project, essay, or creative project. Students are responsible for identifying their own research project and full-time faculty mentor. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment limited to students in the College of Education.

**ED 5998 Field Studies Cr. 1-8**

Supervised professional study in field settings. Offered Every Term.

**Repeatable for 8 Credits**

**ED 7990 Directed Study Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ED 7996 Directed Research Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 16 Credits**

**ED 7998 Field Studies Cr. 1-8**

Supervised professional study in field situations. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 16 Credits**

**ED 7999 Terminal Master's Seminar and Essay or Project Cr. 3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**ED 8999 Master's Thesis Research and Seminar Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ED 9989 Doctoral Dissertation Research and Direction Cr. 1-16**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 30 Credits**

**ED 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ED 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Doctoral Candidate; enrollment is limited to Graduate level students.

**ED 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ED 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ED 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ED 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ED 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ED 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ED 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

# EDA - Educational Administration

## **EDA 7600 The Structure of American Education Cr. 2**

Major organizational, financial, administrative, legal and extra-legal problems affecting public education in the United States. Role of the educator in effecting change. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7625 Leadership, Administration and the Principals Cr. 4**

Provides a conceptual framework of the administrative process; examines interrelationships between the person, the job, the organizational setting, and the wider social context of education; examines the ways in which political, social and economic factors influence administrative decision making and leadership. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7660 Administrative Leadership in School-Community Relations and Public Relations Cr. 3**

Relationships between the school and the community; special reference to social change, community needs and the total school program; demographic and public relations techniques for school improvement, program development in special area, and millage campaigns in the context of the structure, function, and organization of the total educational system in a multicultural and pluralistic society. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7670 Economic Issues in Education Cr. 3**

Economic issues in education at the local, intermediate, state, and federal levels. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7675 Public School Finance and Budgeting Cr. 4**

Elementary and secondary public school finance and budgeting: legal foundations of school funding, how revenue is raised and distributed by states, the ways resources are allocated at the local district and school levels. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7690 Introduction to Michigan School Law Cr. 4**

Constitutional and legal factors affecting Michigan public education. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7730 Intersectional Issues in Educational Leadership Cr. 3**

Intersectional Issues in Educational Leadership examines how social identities and systems of power converge in schools to create differential experiences for students, teachers, administrators, and leaders. The course covers the historical and contemporary workings of such systems of domination as racism, sexism, classism, hetero-patriarchy, and ableism—particularly as they inform discourses, policies, and practices in education. The course also focuses on theories and praxis to advance equity and justice through educational leadership. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7735 Advanced Intersectional Issues in Educational Leadership Cr. 3**

Advanced Intersectional Issues in Education will further students' understanding of the foundations and development of intersectional thought from the 1970s to the present, particularly as it relates to education and the social sciences. It will also support students in applying intersectional theory to their doctoral research. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7800 Administration and Supervision of Special Education Cr. 4**

Professional problems; standards and procedures; references to history, development, philosophy, legal provisions, rules and regulations; major developments and trends at federal, state and local levels; services of other organizations and agencies. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7810 Michigan Special Education Law Cr. 4**

Implications of statutes and regulations undergirding the education of the handicapped; educator's role in implementing, monitoring and influencing state and federal mandates for special education. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7820 Emergent Policies in Special Education Administration Cr. 2**

Discussion of research and literature relating to changing and emergent policies. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 7830 Practicum in Special Education Administration and Supervision Cr. 3-6**

Supervised field-based experiences or individualized and contracted plan of supervised field study for special education administrators, curriculum resource consultants, supervisors, administrative consultants, and project directors. Multi-level practicum sites arranged. Offered Every Term.

**Prerequisite:** EDA 7800 with a minimum grade of C and EDA 7810 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

## **EDA 8620 School Personnel Administration Cr. 3**

Analysis of the personnel function in educational administration. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 8625 Introduction to School Human Resources Cr. 3**

The purpose of this course is to introduce students to the legal, practical, and instructional aspects of school human resources. The approach to the topics will be through the lens of the building administrator. Particular attention is paid to topics including teacher evaluation, teacher coaching, staff recruitment, and building level human resources practices. The course includes a blend of legal and practical approaches to supporting the human capital needs of a school. The course recognizes that equity and access are key concepts in the school human resources environment. Particular focus will be placed on legal requirements in the State of Michigan. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 8630 Supervision Cr. 3**

Basic issues in motivation, job satisfaction, and goal attainment in educational and human service organizations. Establishing productive supervisor/staff relations. Monitoring employee performance. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **EDA 8650 Staff Development and School Improvement Cr. 2-6**

A clinical experience in planning, design, and implementation of in-service and of staff development programs. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

## **EDA 8710 Readings in General Administration Cr. 4**

Directed readings in the principles underlying administration in education, government, business and social agencies and other major areas. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDA 8990 Internship in Administration Cr. 1-8**

Supervised experience in administration of public education, government, business, and social agencies. Internship in cooperating school system. Includes seminar. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## EDP - Educational Psychology

**EDP 1000 Psychology of Human Happiness Cr. 3**

Teaches students the underlying science and psychology of living a more satisfying and fulfilling life. This includes teaching students how to apply cutting edge findings in psychological science in their own personal and professional lives. Offered Every Term.

**EDP 3101 Introduction to Applied Behavior Analysis Cr. 4**

Students will become familiar with techniques used in implementing Applied Behavior Analysis with people with special needs including Autism. Offered Fall.

**EDP 3102 Techniques of Applied Behavior Analysis Cr. 4**

Students will expand their knowledge of techniques used in implementing Applied Behavior Analysis with people with special needs including Autism. Advanced topics of Behavior Analysis will be taught. Offered Winter.

**Prerequisites:** EDP 3101 with a minimum grade of C- and EDP 3105 with a minimum grade of C- (may be taken concurrently)

**EDP 3103 Applied Behavior Analysis Assessment and Treatment Planning Cr. 4**

Students will learn various assessment and treatment planning techniques utilized in Applied Behavior Analysis. Offered Fall.

**Prerequisites:** EDP 3102 with a minimum grade of C- and EDP 3106 with a minimum grade of C- (may be taken concurrently)

**EDP 3104 Field Experience in Applied Behavior Analysis I Cr. 2**

Accompanies in EDP 3101 - Introduction to Applied Behavior Analysis and exposes students to observation experiences of working with persons with Autism. Offered Fall.

**Prerequisites:** EDP 3101 (may be taken concurrently)

**EDP 3105 Field Experience in Applied Behavior Analysis I Cr. 2**

Accompanies EDP 3102: Techniques of Applied Behavior Analysis and provides students beginning opportunities to work within the ABA model with persons with Autism. Offered Winter.

**Prerequisites:** EDP 3102 with a minimum grade of C- (may be taken concurrently)

**EDP 3106 Field Experience in Applied Behavior Analysis II Cr. 2**

Accompanies EDP 3103: Applied Behavior Analysis Assessment and Treatment Planning and provides students increasing independence in assessing and treating persons with Autism within the ABA model. Offered Fall.

**Prerequisites:** EDP 3103 (may be taken concurrently)

**EDP 3310 Educational Psychology Cr. 3**

Introductory course in educational psychology. Topics include, but are not limited to: child and adolescent development, cognitive and behavioral learning theories, information processing, motivation and evaluation. Includes study of exceptional children and those with cultural differences. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.

**EDP 5450 Child Psychology Cr. 2-3**

Basic concepts, research findings and problems regarding child, pre-adolescent and early adolescent developmental needs as they apply to school and home environments; includes study of exceptional children and those with cultural differences. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**EDP 5480 Adolescent Psychology Cr. 2-3**

Basic concepts, research findings and problems regarding early adolescent and adolescent developmental needs as they apply to school and home environments; includes study of exceptional children and those with cultural differences. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**EDP 6210 Foundations of Educational Psychology Cr. 3**

Introduction to current issues in educational psychology. Topics include, but are not limited to: child and adolescent development, learning, motivation, information processing and evaluation. Includes study of the exceptional child and those with cultural differences. Offered Fall, Winter.

**EDP 7101 Foundations of Applied Behavior Analysis Cr. 3**

Principles and concepts of Applied Behavior Analysis (ABA), fundamental vocabulary, and methodology of the science of behavior management. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7102 Assessment Techniques in Applied Behavior Analysis Cr. 3**

Overview of assessment techniques used in behavioral intervention planning, functional assessments, functional assessment interview, descriptive and functional analysis, data collection and interpretation, preference assessment, and interpretation of evaluation tools. Offered Yearly.

**Prerequisite:** EDP 7101 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7103 Applied Behavior Analysis Treatment Planning Cr. 4**

Techniques used in behavioral intervention planning, data collection, interpretation of assessments, development of goals and objectives, overview and application of treatment interventions and considerations. Topics include social validity, reinforcement procedures, teaching procedures, behavior reduction procedures, and stimulus equivalence. Assignments include literature research and paper presentations, participation in discussions, and implementation of behavioral principles. Offered Yearly.

**Prerequisite:** EDP 7102 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7104 Research Methods in Applied Behavior Analysis Cr. 4**

Course includes an overview of data methods used in Applied Behavior Analysis. Students will become familiar with using and analyzing various data collection and display methods. Students will be able to assess data through visual analysis and raw data, be able to identify various forms of experimental designs and become familiar with the contexts for using experimental designs and data collection methods. The majority of the course will be devoted to methods related to single-case research. Offered Yearly.

**Prerequisite:** EDP 7101 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7105 Ethical Practice in Applied Behavior Analysis Cr. 3**

Responsibility, values, ethics, and practice principles of the field of behavior analysis. Offered Yearly.

**Prerequisite:** EDP 7111 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7106 Field Experience in Applied Behavior Analysis I Cr. 2**

Students will spend supervised time in the field practicing skills learned in the BCBA (Board Certified Behavior Analyst) course sequence. Students will work directly with multiple clients using a variety of Applied Behavior Analysis techniques. Specific focus on supervised one on one behavioral intervention work with children. Course content will cover intensive behavior intervention service delivery models and the treatment components related to outcome gains. Offered Yearly.

**Corequisite:** EDP 7101

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7107 Field Experience in Applied Behavior Analysis II Cr. 2**

Students will spend supervised time in the field practicing skills learned in the BCBA (Board Certified Behavior Analyst) course sequence. Students will work directly with multiple clients using a variety of Applied Behavior Analysis techniques. Offered Spring/Summer.

**Prerequisite:** EDP 7106 with a minimum grade of C

**Corequisite:** EDP 7102

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7108 Field Experience in Applied Behavior Analysis III Cr. 2**

Students will spend supervised time in the field practicing skills learned in the BCBA (Board Certified Behavior Analyst) course sequence. Students will work directly with multiple clients using a variety of Applied Behavior Analysis techniques. Specific focus on development and writing of treatment plans, and other reports (supervision notes, programs, behavior plans, discharge reports). Offered Spring/Summer.

**Prerequisite:** EDP 7107 with a minimum grade of C

**Corequisite:** EDP 7103

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7109 Field Experience in Applied Behavior Analysis IV Cr. 2**

Students will spend supervised time in the field practicing skills learned in the BCBA (Board Certified Behavior Analyst) course sequence. Students will work directly with multiple clients and staff using a variety of Applied Behavior Analysis techniques. The highest level of independent behavioral intervention work including managing all necessary assessment, treatment, case management, and intervention training and supervision of parents and technicians is expected in this semester. Offered Winter.

**Prerequisite:** EDP 7108 with a minimum grade of C

**Corequisite:** EDP 7111

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7110 Field Experience in Applied Behavior Analysis V Cr. 2**

Students will spend supervised time in the field practicing skills learned in the BCBA (Board Certified Behavior Analyst) course sequence. Students will work directly with multiple clients and staff using a variety of Applied Behavior Analysis techniques. The highest level of independent behavioral intervention work including managing all necessary assessment, treatment, case management, and intervention training and supervision of parents and technicians is expected in this semester. Offered Winter.

**Prerequisite:** EDP 7109 with a minimum grade of C

**Corequisite:** EDP 7105

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7111 Advanced Applied Behavior Analysis Treatment Planning Cr. 4**

Students will learn advanced application techniques of Behavior Analysis and corresponding considerations. Topics of discussion include management of severe behavior problems, reduction of stereotypic behavior, toilet training, feeding plans, and methods for cognitively delayed or highly skilled clients. Assignments include literature research and paper presentations, participation in discussions, and implementation of behavioral principles. Offered Yearly.

**Prerequisite:** EDP 7103 with a minimum grade of C

**Corequisite:** EDP 7109

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7112 Conceptual Analysis in Applied Behavior Analysis Cr. 3**

History and Philosophy of Applied Behavior Analysis (ABA), theoretical approaches to understanding behavior, and interpretations of the concepts and principles of behavior. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7113 Organizational Behavioral Management in Applied Behavior Analysis Cr. 3**

Concepts of time management and supervision based on principles of Applied Behavior Analysis (ABA), including behavioral skills training, techniques in providing feedback to staff, and performance management in clinical settings. Offered Yearly.

**Prerequisite:** EDP 7109 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7190 Couples Therapy Cr. 3**

An introduction to the research, theories, skills and assessments related to couples therapy. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Counseling Psychology or School and Community Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.

**EDP 7200 Systemic Theories and Family Therapy Cr. 3**

Survey of systemic theories and family systems therapy. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7220 Psychotherapy with Children and Adolescents Cr. 4**

Theory of psychotherapy, including stages of therapy, issues of therapy, and techniques of therapy with children and adolescents. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Counseling Psychology or School and Community Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.

**EDP 7240 Systems of Psychotherapy Cr. 3**

Survey and synthesis of leading systems of psychotherapies and interventions. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Counseling Psychology or School and Community Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.

**EDP 7260 School-Based Consultation and Intervention Cr. 3**

Consultation; academic and psychotherapeutic interventions. Emphasis on practical skills needed to work directly or indirectly with individuals and groups in the school setting. Offered Winter.

**Prerequisite:** EDP 7220 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7300 Ethics, Standards, and the Practice of Psychology Cr. 4**

Legal, ethical, and professional issues confronting the practitioner. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in School and Community Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.

**EDP 7350 The Learning Process Cr. 2-3**

Substantive issues involved in learning as they relate to school practice. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7370 Psychopathology and Diagnosis Cr. 3**

Overview of descriptive psychopathology, diagnosis, treatment approaches and recovery. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7400 Foundations of Social Psychology Cr. 3**

Systematic study of social psychology; implications for research and applied settings. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.



**EDP 7410 Human Developmental Psychology Cr. 3-4**

Survey of research from psychoanalytic and learning viewpoints on human development from birth to adulthood. Emphasis on school environment and community psychology practice. Offered Fall, Winter.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7420 Introduction to Behavioral Psychology Cr. 4**

Basic principles and theories of behavioral psychology. Theoretical aspects of both operant and respondent conditioning. Offered Fall.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7430 Applications I: Behavioral Psychology and Social Learning Cr. 4**

Behavioral techniques used in dealing with the social behavior of both groups and individuals. Offered Winter.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7520 Professional Ethics and Standards for Psychologists Cr. 3**

An overview of scientific and professional ethics and standards related to the practice of psychology. Offered Winter.  
**Restriction(s):** Enrollment is limited to students with a major in Counseling Psychology or School and Community Psycholog; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.

**EDP 7561 Assessment of Cognitive Functioning Cr. 4**

Theory, administration, scoring use, and interpretation of objective assessments of intelligence, achievement, perceptual function, and personality. Eight full administrations of one of the assessments: Binet, Wechsler, Bayley or McCarthy Scales. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Counseling Psychology or School and Community Psycholog; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.  
**Fees:** \$180

**EDP 7562 Assessment of Personality and Social-emotional Functioning Cr. 4**

Theory of personality development; administration, scoring, and interpretation of personality and social-emotional assessments; data integration and report writing. Offered Fall.

**Prerequisite:** EDP 7490 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Counseling Psychology or School and Community Psycholog; enrollment is limited to Graduate level students.

**Fees:** \$75

**EDP 7563 Assessment of Academic Achievement Cr. 3**

Students will administer, score, and interpret various academic achievement measures, integrate data and write instruction-driven reports, and communicate test results verbally. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in School and Community Psycholog; enrollment is limited to Graduate level students.

**EDP 7564 Assessment and Intervention for Academic Learning Difficulties Cr. 4**

Students will learn about typical development of academic skills, historical and current methods of Specific Learning Disabilities evaluation, and linking academic assessment data to academic interventions for all levels of learning difficulties; emphasis on reading. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$125

**EDP 7610 Child and Adolescent Psychopathology Cr. 3**

Study of theories of psychopathology in children and adolescents and the application to these theories to practice. Differential diagnosis using currently acceptable classification systems. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Counseling Psychology or School and Community Psycholog; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.

**EDP 7991 Capstone Project in Applied Behavior Analysis: Introduction Cr. 1**

Develop knowledge in the Institutional Review Board (IRB) application process and construct a research question to prepare for their Capstone project. Offered Yearly.

**Prerequisite:** EDP 7104 with a minimum grade of C

**Corequisite:** EDP 7103

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7992 Capstone Project in Applied Behavior Analysis I Cr. 2**

Develop competence in defining a research problem, designing a method to address the problem, and reviewing expected outcomes and conclusions of the intervention. Use the Capstone research model, which answers questions of practical importance such as developing an evaluation method or evaluating an intervention, curriculum, or protocol within a particular agency or practice setting. Students will extend what they learned in EDP 7991 Capstone Project introduction and the methods for an intervention to use in a clinic setting and apply for approval from the Wayne State University Institutional Review Board. Offered Yearly.

**Prerequisite:** EDP 7991 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7993 Capstone Project in Applied Behavior Analysis II Cr. 2**

Develop competence in defining a research problem, designing a method to address the problem, and reviewing expected outcomes and conclusions of the intervention. Use the Capstone research model, which answers questions of practical importance such as developing an evaluation method or evaluating an intervention, curriculum, or protocol within a particular agency or practice setting. Students will extend work from EDP 7992 Capstone Project I to include development of competence in conducting and reporting an investigation including evidence-based methods, analyzing data, and drawing and reporting on a conclusion. Offered Yearly.

**Prerequisite:** EDP 7992 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 7996 Research in Educational Psychology Cr. 1-8**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**EDP 8250 Fundamental Studies in Educational Psychology IV Cr. 3-9**

Advanced study of a specific area in psychology with application to educational practice. Topics to be announced in Schedule of Classes . Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Educational Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Education or Doctor of Philosophy degrees.

**Repeatable for 9 Credits**

**EDP 8318 Integrated Assessment Practicum Cr. 3**

Building on prior assessment courses, in this practicum experience students will learn to integrate across assessment practices in the cognitive, visual-motor, adaptive behavior, academic achievement, and social-emotional-behavioral and personality domains. Emphasis will be on conceptualizing and conducting individual cases involving a variety of psycho-educational difficulties. Offered Fall.

**Prerequisite:** EDP 7563 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$100

**EDP 8319 Pre-practicum in Clinical Procedures Cr. 1-8**

Opportunity to provide psychological services (e.g., psychotherapy) to clients under supervision. Offered Winter.

**Prerequisites:** EDP 7240 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to students with a major in Counseling Psychology; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**EDP 8320 Internship in Clinical Procedures I Cr. 1-8**

Practicum in one of the organized health care settings cooperating with the University. Psychotherapy and psychological assessment with supervision of not less than two hours per week by a licensed psychologist at the cooperating site. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Counseling Psychology or School and Community Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.

**Repeatable for 8 Credits**

**EDP 8330 Practicum/Field Experience in School Psychology Cr. 1-8**

Internship as a school psychologist in an approved school with school-age pupils. Interns under supervision of person holding Michigan School Psychologist Certificate. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in School and Community Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Education Specialist Cert or Master of Arts degrees.

**Repeatable for 8 Credits**

**EDP 8360 Internship in School Psychology Cr. 1-8**

Advanced internship as school psychologist for those holding a Preliminary School Psychologist Certificate. Internship in an approved school with school-age pupils; supervision by University faculty and person with Michigan School Psychologist Certificate. Offered Every Term.

**Prerequisite:** EDP 8330 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**EDP 9000 Doctoral Seminar in Counseling Psychology Cr. 3**

The primary aim of this course is to offer a comprehensive review of counseling psychology as it relates to clinical practice, training and supervision, research, and advocacy. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 9310 Doctoral Seminar in Educational Psychology Cr. 3**

An examination of psychological concepts relevant to the development and carrying forward of the work of the schools. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EDP 9319 Advanced Practicum in Clinical Procedures Cr. 1-8**

Practicum on campus or with a cooperating sites emphasizing advanced level skills in psychotherapy and psychological assessment, supervised a Licensed Psychologist and/or university faculty/staff. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Educational Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Education or Doctor of Philosophy degrees.

**Repeatable for 8 Credits**

**EDP 9320 Internship in Clinical Procedures Cr. 1-8**

Placement as a pre-doctoral psychology intern in appropriate organized health care setting under the supervision of a licensed psychologist. Offered Every Term.

**Prerequisite:** EDP 8320 with a minimum grade of C or EDP 8330 with a minimum grade of C or EDP 8340 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## EDS - Educational Sociology

**EDS 9620 Doctoral Seminar in Educational Sociology Cr. 3**

Basic concepts of sociology applied to contemporary education. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

## EED - English Education

**EED 5200 Methods of Teaching English (7-12) Cr. 3**

Introduction to the purposes and methods of teaching English language arts in grades seven through twelve. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

**EED 6120 Teaching Composition Methods (7-12) Cr. 3**

Methods for composition instruction, grades 7-12, including writing processes, writing workshop, digital literacies, and the teaching of grammar and vocabulary in the context of writing instruction. Offered Fall.

**Prerequisite:** EED 5200

**Corequisite:** EED 6125

**Restriction(s):** Enrollment limited to students in the College of Education.

**EED 6125 Teaching Composition Clinical (7-12) Cr. 2**

This course offers school-based English/composition clinical experience in the 7-12 grade band for pre-service teachers. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with clinical instructors and mentor educators. Offered Fall.

**Prerequisite:** EED 5200

**Corequisite:** EED 6120

**EED 6210 Language, Literacy, and Learning Cr. 3**

This course explores the teaching of language, grammar, and usage in English language arts classrooms, based in sociocultural and sociolinguistic approaches to teaching literacy and language. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

**EED 6310 Young Adult Literature Cr. 3**

Standards for evaluating young adult literature. Selection of literature in relation to students' interests and reading abilities in grades 7-12. Analysis of literary and sociocultural factors affecting adolescent experiences with young adult texts. Offered Yearly.

**Equivalent:** INF 6530

**EED 6330 Teaching Literature Methods (7-12) Cr. 3**

Pedagogical approaches to the teaching of literature in grades 7-12. Structure of literary genres in relation to sociocultural and critical theories of teaching literature in grades 7-12. Offered Winter.

**Prerequisite:** EED 5200

**Corequisite:** EED 6335

**Restriction(s):** Enrollment limited to students in the College of Education.

**EED 6335 Teaching Literature Clinical (7-12) Cr. 2**

This course offers school-based English/literature clinical experience in the 7-12 grade band for pre-service teachers. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with clinical instructors and mentor educators. Offered Winter.

**Prerequisite:** EED 5200

**Corequisite:** EED 6330

## EER - Educational Evaluation and Research

**EER 1501 Quantitative and Qualitative Methodology Cr. 3**

The rationale of quantitative methods applied to research design, sampling, instruments, and descriptive and inferential statistics via university supplied software; and qualitative methods for categorical data including nonrandom sampling, coding, and networks/displays. Applicable to all majors for solving real-world problems and defending the results. Offered Fall, Winter.

**EER 4501 Quantitative and Qualitative Research, Measurement, and Program Evaluation Cr. 3**

Provides an introduction to systematic disciplined inquiry and program evaluation. Topics in quantitative methods to be covered include : experimental, quasi-experimental, and survey research; instrument reliability and validity; descriptive and inferential statistics. Topics in qualitative methods to be covered include: grounded theory, ethnography, case study; trustworthiness, coding, and data networks/displays. Offered Fall, Winter.

**EER 7410 Introduction to Program Evaluation Cr. 1**

Introduces the fundamental processes of evaluation: clarification, design, implementation, and evaluation. Consists of lectures from the instructor of record and guest lectures from program faculty introducing the fundamentals of program evaluation and materials covered in-depth throughout the program. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7420 Culturally Responsive Program Evaluation Cr. 3**

Examines ethical practice responsive to stakeholder rights, needs, and values tied to cultural contexts and the relevance of cultural practices as it pertains to ethical decision making in project design. Students will create and evaluate ethically produced project design goals by engaging with and in the methods of social science research. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7430 Organizational Theory for Evaluation Cr. 3**

Designing, implementing, and evaluating a program through an understanding of the stakeholders making up an organization and their interact among themselves. Breaks down the fundamentals of organizational theory in the context of program evaluation to better determine whether or not a project is well designed and implemented, whether or not it meets the diverse needs of and adheres to the values of stakeholders. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7610 Evaluation and Measurement Cr. 2-3**

Principles and practices of evaluation and measurement with special focus on behavioral goals. Informal and formal evaluational strategies. Problems of self-evaluation. Logical, philosophical, and linguistic problems of evaluational methods and devices. Metrical analyses and standards. Innovations in educational assessment and accountability. Teacher-made tests. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7630 Fundamentals of Statistics Cr. 3**

Review of mathematics essential for statistics, sampling, computer use. Basic patterns of statistical inference, confidence estimation and significance testing regarding measures of averages, dispersion, correlation, and selected non-parametric statistics. One-way and two-way analysis of variance. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7640 Fundamentals of Quantitative Research Cr. 3**

Basic skills in educational research; nomenclature, problem, theory, hypothesis formulation; bibliographical and documentary techniques; retrieval systems; development of data-gathering instrumentation; computer orientation and research uses; collection and organization of data; manuscript development; report writing; techniques, methodologies for descriptive and experimental inquiry. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7650 Computer Use in Research Cr. 3**

Introduction to computer use in educational research with emphasis on using statistical packages (MIDAS and SPSS, BASIC programming language); writing statistical programs. Offered Every Term.

**Prerequisite:** EER 7630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7870 Qualitative Research I: Introduction Cr. 3**

Explores frameworks that inform what knowledge is and how it is produced. Review of validity, reliability, positionality, and ethics in qualitative research. Overview of major research designs (ethnography, grounded theory, phenomenology, case study, and narrative analysis). Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7880 Fundamentals of Ethnographic Research Cr. 3**

Collecting, analyzing, and writing up findings from ethnographic data (participant-observation field notes, interviews, and artifacts); issues of rigor in naturalistic research in education. Offered Fall, Winter.

**Prerequisite:** EER 7870 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7910 Qualitative Methods for Diversity and Inclusion Cr. 3**

Explores qualitative methodologies at the intersection of diversity and inclusion. Includes readings that address qualitative methodologies and theories that relate to race, ethnicity, gender, sexuality, dis/ability, age, class, language, and other aspects of diversity and inclusion. Examines the role of global communities in qualitative research. Offered Fall.

**Prerequisite:** EER 7870 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 7920 Qualitative Methods for Community and Classroom Research Cr. 3**

Explores qualitative methodologies for community research in local contexts. Examines principles of, and considerations for, place-based research in nearby communities. Designs a community-based research project, includes a focus on participatory action research, and examines the role of local communities in qualitative research. Offered Winter.

**Prerequisite:** EER 7870 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8520 Qualitative Research II: Design and Data Collection Cr. 3**

Examines approaches to qualitative data collection (interviews, focus groups, observations, documents, text, sound, video, and images). Readings in, and applications of, major qualitative research designs (ethnography, grounded theory, phenomenology, case study, narrative, and visual analysis). Offered Fall.

**Prerequisite:** EER 7870 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8530 Qualitative Research III: Data Analysis and Reporting Cr. 3**

Examines approaches to qualitative data analysis and computer assisted qualitative data analysis software (CAQDAS). Readings in, and applications of, major forms of qualitative data analysis (ethnography, grounded theory, phenomenology, case study, narrative, and visual analysis). Also addresses discourse analysis and theoretical analysis. Offered Winter.

**Prerequisite:** EER 8520 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8550 Advanced Qualitative Inquiry: Innovations in Theory Cr. 3**

Explores contemporary developments in theories of qualitative research. Examines recent theories in education and social sciences research and connects theory with methodological practice. Develops approaches to research design that are grounded in theoretical frameworks. Offered Fall.

**Prerequisite:** EER 8530 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8560 Advanced Qualitative Inquiry: Innovations in Practice Cr. 3**

Explores contemporary developments in the practice of qualitative research, and situates recent trends within historical developments in the field. Offered Winter.

**Prerequisite:** EER 8550 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8700 Advanced Qualitative Program Evaluation Cr. 3**

Create criteria for needs, standards and performances by assembling qualitative data on the activity, aspirations, problems, and accomplishments of stakeholders of a given program. Evaluation is presented as a process of decision making. Students will be able to practice and produce evaluations as a process specific to a particular program situation. Offered Fall.

**Prerequisite:** EER 7870 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8710 Advanced Ethnographic Research Cr. 4**

Use of fieldwork to learn group interview, video collection and analysis, ethnographic survey, narrative and poetic analysis; deepening the understandings about culturally-sensitive research, rigor, and the politics of representation. Offered Winter.

**Prerequisite:** EER 7880 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8720 Advanced Quantitative Program Evaluation Cr. 3**

Educational and school program evaluation: alternative approaches; students propose theory-based designs and strategies. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8760 Advanced Measurement I Cr. 3**

Classical measurement theory including scaling, measurement error, reliability, validity. Review of strong statistics versus weak measurement debate. Empirical methods of psychometric applications in education and educational psychology. Offered Yearly.

**Prerequisite:** EER 7610 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8770 Advanced Measurement II Cr. 4**

Modern measurement theory. Item response theory, including one and three parameter models, detecting item bias, multi-dimensional scaling. Offered Winter.

**Prerequisite:** EER 8760 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8800 Variance and Covariance Analysis Cr. 4**

Multiple, partial, canonical correlation: variance and covariance analysis; Models I and II. Statistical analysis in experimental designs; Random Blocks, Latin Squares, Greco-Latin Squares, simple and complex factorials, confounding, fractional and split-plot designs. Supporting topics and techniques; missing observations; adjustment of means; probing the homogeneity of means and variances; study of contrasts; orthogonal polynomials and computer usage. Offered Yearly.

**Prerequisite:** EER 7630 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8820 Multivariate Analysis Cr. 4**

Discriminant analysis, profile analysis; placement and classification problems; component and factor analysis. Supporting topics and techniques; transformation of variables, computer usage. Offered Yearly.

**Prerequisite:** EER 8800 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8840 Structural Equation Modeling Cr. 4**

Application of structural equation methods to applied educational psychology research. Model specification, estimation, and fit. Confirmatory factor analysis and correlation. Offered Yearly.

**Prerequisite:** EER 8820 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8860 Nonparametric, Permutation, Exact, and Robust Methods Cr. 4**

Application of nonparametric, permutation, exact and robust methods to social and behavioral science data. Techniques of estimation, location, and association for discrete and continuous data. Offered Fall, Winter.

**Prerequisite:** EER 7630 with a minimum grade of C and EER 8800 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8880 Monte Carlo Methods Cr. 1**

FORTAN 77/90/95 applied to Monte Carlo Methods for the development of new statistics and procedures and the comparison of existing methodologies. Solving data analysis problems via simulation techniques. Offered Fall, Winter.

**Prerequisite:** EER 7630 with a minimum grade of C and EER 8800 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8900 Qualitative Design for School Research Cr. 3**

Field Placement. Integration of theory with practice for conducting, analyzing, and reporting qualitative research or evaluation in the schools. Offered Fall.

**Prerequisite:** EER 8700 with a minimum grade of C or EER 8710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EER 8910 Practicum in Evaluation Cr. 3**

Offers practical experience for evaluation practitioners in clarification, design, implementation, and evaluation. Students will conduct an authentic evaluation using both qualitative and quantitative methodology to demonstrate mastery of the fundamentals of program evaluation and develop specific areas of expertise. Offered Spring/Summer.

**Prerequisite:** EER 8700 with a minimum grade of C and EER 8720 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.



**EER 8992 Research and Experimental Design Cr. 3-4**

Design of empirical research for students possessing basic knowledge of statistics. Topics include hypothesis construction, sampling theory, experimental and quasi-experimental designs, selection of statistical procedure, and construction of data gathering instruments. Offered Fall, Winter.

**Prerequisite:** EER 7630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

## EET - Electrical/Electronic Engineering Technology

**EET 2000 Electrical Principles Cr. 3**

Kirchhoff's laws, D.C. and A.C. circuit analysis, impedance, phasors, power and power factor correction, mutual coupling. Power transformers, D.C. and A.C. generators and motors, motor controls. Offered Yearly.

**Prerequisites:** MAT 1800 with a minimum grade of C-

**EET 2100 Principles of Digital Design Cr. 3**

Applied Boolean algebra and number systems. Logic families, K-mapping; combinational logic, multiplexers and demultiplexers, readouts and displays, flip flops. Offered Yearly.

**EET 2720 Microprocessor Fundamentals Cr. 3**

Use of microprocessors as interface devices, including software, interfaces, memory, registers, and microcomputer system architecture, computer programming design projects. Offered Yearly.

**Prerequisites:** CSC 1050 with a minimum grade of C- or ET 2160 with a minimum grade of C-

**Fees:** \$25

**EET 3100 Advanced Digital Design Cr. 3**

System level design of digital logic circuits using hardwired and programmable logic devices. ROMs, PROMs, and PLAs. Synchronous and asynchronous circuit design and analysis. Offered Fall, Winter.

**Prerequisites:** EET 2100 with a minimum grade of C-

**EET 3150 Network Analysis Cr. 4**

Analysis of circuits with dependent sources, RL, RC, and RLC circuit transient and sinusoidal response, network functions, frequency response, and power analysis. Offered Fall, Winter.

**Prerequisites:** EET 2000 with a minimum grade of C-, ET 3450 with a minimum grade of C- (may be taken concurrently), and PHY 2140 with a minimum grade of C-

**EET 3180 Analog Electronics Cr. 4**

Operational amplifiers, circuit and applications; summing and subtracting amplifiers; integrating and differentiating amplifiers; comparators. Design of active filters, oscillators and waveform generating circuits, and audio integrated circuits. Offered Fall, Winter.

**Prerequisites:** CHM 1020 with a minimum grade of C- and EET 2000 with a minimum grade of C-

**Fees:** \$20

**EET 3300 Applied Signal Processing Cr. 3**

Continuous-time and discrete-time signals, frequency response and impulse response; transfer function of linear systems, data acquisition and sampling, continuous and discrete Fourier transform; spectrum analysis and filtering; digital filter design. Offered Fall, Winter.

**Prerequisites:** EET 3150 with a minimum grade of C- (may be taken concurrently) and ET 3450 with a minimum grade of C-

**EET 3500 Electrical Machines and Power Systems Cr. 3**

Energy fundamentals. Physical and operating characteristics of D.C. and A.C. generators and motors, transformers. Electric power network. Transmission line stability. Power factor correction. Load sharing by transformers and generators. Per unit notation. Environmental impact of electric power generation. Offered Winter.

**Prerequisites:** EET 2000 with a minimum grade of C- and ET 3450 with a minimum grade of C-

**EET 3720 Micro and Programmable Controllers Cr. 3**

Microprocessors and Programmable logic controllers; on-chip I/O resources, interfacing; controls, instrumentation, and communication; data manipulation and sequencer instruction set; development and debugging tools. Offered Fall, Winter.

**Prerequisites:** EET 2720 with a minimum grade of C-

**Fees:** \$20

**EET 4100 Computer Hardware Design Cr. 3**

Structural organization and hardware design of digital computers. Register transfer, micro-operations, and microprogram control. Processing and control units, arithmetic algorithms, input-output systems, and memory systems. Offered Yearly.

**Prerequisites:** EET 2720 with a minimum grade of C- and EET 3100 with a minimum grade of C-

**EET 4200 Control Systems Cr. 4**

Feedback control systems with topics in time response, stability criteria, system representation, frequency response, compensation. PID controller; simulation of electrical and mechanical systems. Offered Fall, Winter.

**Prerequisites:** ET 3450 with a minimum grade of C- and EET 3500 with a minimum grade of C-

**Fees:** \$10

**EET 4600 Power Electronics Cr. 3**

Understanding different types of power semiconductor devices; analysis of typologies of uncontrolled and controlled converters, dc-dc converters. Simulation of power converters and application of power converter technologies in industrial and utility applications. Offered Yearly.

**Prerequisites:** EET 3150 with a minimum grade of C- and ET 3450 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**EET 4990 Guided Study Cr. 1-6**

Supervised study and instruction in field selected by student. Offered Intermittently.

**Repeatable for 6 Credits**

**EET 5720 Computer Networking Applications Cr. 4**

Networking protocols, components, architecture, and standards. Data communication, data packet structure, data transmission methods and techniques, network topologies, and media access control methods. Offered Yearly.

**Prerequisites:** EET 2720 with a minimum grade of C- and EET 3100 with a minimum grade of C-

**Fees:** \$25

**EET 5730 Embedded Systems Networking Cr. 3**

Principles of data communications and real-time wired and wireless embedded systems networking. State of the art embedded networks including Controller Area Networks (CAN), internet connectivity and other embedded standards will be utilized in this project based class. Offered Fall.

**Prerequisites:** EET 3100 with a minimum grade of C- and EET 3720 with a minimum grade of C-

**EET 7720 Advanced Computer Networking Cr. 4**

Latest advances in networking; internetworking with bridges, routers, and switches. LAN and WAN protocols, high speed networks. Offered Yearly.

**Prerequisite:** EET 5720 with a minimum grade of C

**Corequisite:** EET 7430

**Restriction(s):** Enrollment is limited to Graduate level students.

## EGR - Engineering: Special Topics

**EGR 5655 Innovation & Entrepreneurship I Cr. 3**

Provides education and hands-on experience in innovation and entrepreneurship applied to enterprise, product and service design and delivery. The first of a 2-semester sequence, this course teaches methods and tools to find, formulate, and develop engineering innovation and entrepreneurship, leading to practical, relevant, and productive new commercial and social enterprises. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**EGR 5656 Innovation & Entrepreneurship II Cr. 3**

Provides education and hands-on experience in innovation and entrepreneurship applied to enterprise, product and service design and delivery. This course is the second of a 2-semester sequence. This course teaches methods and tools to find, formulate and develop engineering innovation and entrepreneurship, leading to practical, relevant, and productive new commercial and social enterprises. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**EGR 5657 Innovation & Entrepreneurship Lab Cr. 1**

Provides hands-on application of Lean LaunchPad principles in innovation and entrepreneurship applied to enterprise, product and service and delivery. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Repeatable for 2 Credits**

**EGR 5658 Global Collaborative Projects Involving Sustainability, Innovation and Cultural Diversity Cr. 3**

Participate in an authentic, global project experience that replicates how you will work in your career. This course, is designed for senior and graduate engineering students from diverse backgrounds. It aims to foster global collaboration, emphasizing sustainability, innovation, and building cross-cultural awareness and diversity. Students will engage in collaborative engineering projects, case studies, presentations, and discussions while gaining insights into different cultures, sustainable engineering practices, innovation, and global sustainability challenges. Offered Spring/Summer.

**EGR 5990 Competition Team Cr. 2**

This course is based on the students' contribution to a team participating in reputed regional/national/international competitions. Participation in the competition gives students a unique, multifaceted learning opportunity entirely led and run by students under the supervision of faculty member. Project teams collaboratively solve the complex engineering problems while gaining real-world experience. Participation in the competition provides students with hands-on laboratory learning experience and gives opportunities to hone leadership and professional skills. The faculty advisor is expected to provide technical and administrative support to the team and the overall program. Offered Every Term.

**Repeatable for 4 Credits**

**EGR 5995 Special Topics in Engineering Cr. 1-4**

State of the art research, development and practice topics from across the fields of engineering; emphasis on interdisciplinary topics. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Repeatable for 4 Credits**

**EGR 7995 Special Topics in Engineering Cr. 1-4**

State of the art research, development and practice topics from across the fields of engineering; emphasis on interdisciplinary topics. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Repeatable for 4 Credits**

**EGR 7999 Elements of Graduate Research Cr. 2**

Key elements of graduate research. Topics covered include developing research ideas and library search skills, constructing a research proposal/prospectus, identifying research funding and fellowship opportunities, interdisciplinary research, and research ethics. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

## EHP - Educational History and Philosophy

**EHP 3600 Introduction to the Philosophy of Education Cr. 3**

Leading philosophies of education as they bear upon education as a profession and as a discipline. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**EHP 7600 Philosophy of Education Cr. 2-3**

Philosophic inquiry into educational theory and practice. For teachers, counselors, curriculum directors, administrators, and those in related professions. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EHP 9600 Doctoral Seminar in Philosophy of Education Cr. 3**

Systematic study of the field of philosophy of education. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

## EI - Entrepreneurship and Innovation

**EI 1000 Entrepreneurial Explorations Cr. 1**

Seminar series designed to expose students to entrepreneurship and innovation through exercises and interaction with experienced entrepreneurs and innovators. Offered Every Term.

**EI 5000 Introduction to Entrepreneurship and Innovation Cr. 3**

Introduces the integrative new venture development framework, processes and tools applied throughout the program, and explores opportunities, resources available and the local entrepreneurial ecosystem. You will work with a team of peers over the course of the term to apply core concepts around the entrepreneurial mindset, business model creation, customer validation, marketing, and delivering a pitch. This class provides an experiential and hands-on experiment in entrepreneurship that pushes students beyond the theoretical and intellectualization of starting a business. No credit after MGT 5650. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**EI 5400 Management and Leadership for Entrepreneurs Cr. 3**

Topics include: the essential attributes of a successful entrepreneur and innovation; development of effective networks and personal relationships; working with and blending the strengths and talents of others, group and team dynamics; effective leadership and management; the everyday challenges of creating, owning and running a new venture, and exploring the differences which arise due to the type and size of the new venture. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**EI 5900 Special Topics in Entrepreneurship and Innovation Cr. 3**

Topics to be announced in the schedule of classes. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**EI 5950 Directed Study in Entrepreneurship and Innovation Cr. 3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**EI 6000 Entrepreneurship and Innovation Capstone Cr. 3**

Combines seminars with a project-intensive learning experience situated in the Detroit entrepreneurial ecosystem. Integrate and apply accumulated learning experiences from previous courses to the creation of a viable new venture and reach a decision whether or not to proceed, pivot, or terminate a new venture, and plan how to take these next steps. Offered Every Term.

**Prerequisites:** EI 5000 and 3 of (EI 5200, EI 5400, EI 5600, EI 5900, EI 5950, FPC 5010, or FPC 5660)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**EI 7000 Introduction to Entrepreneurship and Innovation Cr. 3**

Exploration of entrepreneurship and innovation, introduces an integrative new venture development framework along with processes and tools applied throughout the certificate program; explores opportunities, resources available and the regional entrepreneurial ecosystem. You will work with a team of peers over the course of the term to apply core concepts around the entrepreneurial mindset, business model creation, customer validation, marketing, and delivering a pitch. This class provides an experiential and hands-on experiment in entrepreneurship that pushes students beyond the theoretical and intellectualization of starting a business. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EI 7400 Management and Leadership for Entrepreneurs Cr. 3**

Topics include: the essential attributes of a successful entrepreneur and innovation; development of effective networks and personal relationships; working with and blending the strengths and talents of others, group and team dynamics; effective leadership and management; the everyday challenges of creating, owning and running a new venture, and exploring the differences which arise due to the type and size of the new venture. Offered Yearly.

**Prerequisites:** EI 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EI 7600 Marketing New Ventures Cr. 3**

Topics include: product development vs. customer development; market types; customer types; diffusion and adoption life cycle theories and concepts; market opportunity analysis and product/ market fit, estimation of market size; value proposition; positioning statement; marketing strategy and plan to launch and sustain a new venture. Offered Yearly.

**Prerequisites:** EI 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EI 7800 Special Topics in Entrepreneurship and Innovation Cr. 3**

Offered Yearly.

**Prerequisites:** EI 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EI 7850 Directed Study in Entrepreneurship and Innovation Cr. 3**

Advanced independent readings and research under the supervision of a graduate faculty member in areas of special interest to student and faculty member. Offered Every Term.

**Prerequisites:** EI 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EI 7900 Entrepreneurship and Innovation Capstone Cr. 3**

Combines seminars and discussions with a project-intensive learning experience situated in the Detroit entrepreneurial ecosystem. Integrate and apply accumulated learning experiences from previous courses to the creation of a viable new venture; reach a decision whether or not to proceed, pivot, or terminate a new venture; plan how to take the next steps and/or continue to pursue funding and achieve venture success. Offered Every Term.

**Prerequisite:** EI 7000 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

## ELE - Elementary Education

**ELE 2000 Child Development: Birth-Age 8 Cr. 3**

Explores processes and trajectories of child development from prenatal development through age 8 from a range of theoretical perspectives. Focus on cultural, linguistic, and socioeconomic contributions to development and fostering development through adult-child relationships. Applying knowledge of development through practical scenarios and video analysis of children's play and exploration. Offered Yearly.

**ELE 2010 Equitable Partnerships with Families and Communities Cr. 3**

Theory and research-based strategies that support equitable collaboration between professionals and families to best meet the needs of children. Explores family and community contexts as assets for learning. Emphasis on culturally and linguistically responsive approaches to learn about and leverage family strengths and priorities, as well as communication strategies for making shared decisions with families. Offered Yearly.

**ELE 2015 Play: How Young Children Learn Cr. 3**

Play as a critical component of children's development and learning. Addresses identifying different forms of play, how play fosters development and learning, embedding skills within play-based interactions, how children use play to understand their lives and the world around them, and theory and research-based strategies to facilitate play for all children. Offered Yearly.

**ELE 2020 Foundations of Early Childhood Education Cr. 3**

Foundational theories, policies, and practices of early childhood education with a focus on inclusive preschool contexts. Explores theory and research-based strategies related to child development, environmental design, play, family partnerships, and assessment. Emphasis on teaching strategies that are developmentally appropriate, culturally responsive, and reflective of universal design for learning. This course contains an integrated clinical experience, and students will complete focused observations at an approved early childhood center. Offered Yearly.

**ELE 2025 Social Emotional Learning: Birth-Age 8 Cr. 3**

Examination of children's social emotional development from birth through age 8, with focus on how development is shaped by cultural and linguistic contexts, including structural inequities, stress, adverse childhood experiences, and trauma. Exploration of how culture contributes to adult perceptions of behavior. Application of environmental and instructional strategies for positive child guidance that build a caring community of learners, prevent and address challenging behaviors, and support children during social conflicts. Offered Yearly.

**ELE 2035 Inclusion, Equity, and Justice in Early Childhood Cr. 3**

Explores principles of inclusive teaching for all children across early childhood settings, with emphasis on equitable and meaningful access, participation, and supports. Examines developmentally appropriate and culturally and linguistically relevant, anti-bias, and evidence-based teaching approaches that reflect the principles of universal design for learning. Addresses foundational processes of early intervention and early childhood special education. Offered Yearly.

**ELE 2050 Intentional and Inclusive Teaching: Infants and Toddlers Cr. 3**

In-depth exploration of intentional and inclusive teaching strategies for infants and toddlers. Designing integrated and purposeful learning experiences through play and exploration for all infants and toddlers, including those with identified disabilities and/or developmental delays. How to enact planned and responsive learning experiences that foster infant and toddler development across all domains and address content areas of language and literacy, the arts, mathematics, social studies, science, technology, and engineering in developmentally appropriate ways. Offered Yearly.

**Prerequisites:** (ELE 2000 with a minimum grade of C or ELE 6000 with a minimum grade of C), (ELE 2020 with a minimum grade of C or ELE 6020 with a minimum grade of C), and (ELE 2035 with a minimum grade of C or ELE 6035 with a minimum grade of C)

**Corequisite:** ELE 2055

**ELE 2055 Intentional and Inclusive Teaching: Infants and Toddlers Clinical Experience Cr. 1**

This course offers community-based clinical experience for pre-service teachers seeking a birth-kindergarten teaching license. Experience includes focused observation of home visiting and center-based infant and toddler care; lesson plan development and implementation; partnership with caregivers; and collaboration with course instructor and mentor educators. Offered Yearly.

**Corequisite:** ELE 2050

**ELE 2075 The Creative Arts in Early Childhood Education Cr. 3**

Supporting the whole child's learning and development through the visual and performing arts and through creative movement from birth to kindergarten. Materials, techniques, and strategies to foster children's appreciation of the arts and their confident, creative participation in the arts. Focus on creative processes, rather than products. Offered Yearly.

**Prerequisites:** ELE 2000 with a minimum grade of C, ELE 2015 with a minimum grade of C, and ELE 2020 with a minimum grade of C

**ELE 6000 Child Development: Birth-Age 8 Cr. 3**

Explores processes and trajectories of child development from prenatal development through age 8 from a range of theoretical perspectives.

Focus on cultural, linguistic, and socioeconomic contributions to development and fostering development through adult-child relationships. Applying knowledge of development through practical scenarios and video analysis of children's play and exploration. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELE 6010 Equitable Partnerships with Families and Communities Cr. 3**

Theory and research-based strategies that support equitable collaboration between professionals and families to best meet the needs of children. Explores family and community contexts as assets for learning. Emphasis on culturally and linguistically responsive approaches to learn about and leverage family strengths and priorities, as well as communication strategies for making shared decisions with families. Offered Fall.

**Equivalent:** PSY 6010, SW 6010

**ELE 6015 Play: How Young Children Learn Cr. 3**

Play as a critical component of children's development and learning. Addresses identifying different forms of play, how play fosters development and learning, embedding skills within play-based interactions, how children use play to understand their lives and the world around them, and theory and research-based strategies to facilitate play for all children. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELE 6020 Foundations of Early Childhood Education Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Foundational theories, policies, and practices of early childhood education with a focus on inclusive preschool contexts. Explores theory and research-based strategies related to child development, environmental design, play, family partnerships, and assessment. Emphasis on teaching strategies that are developmentally appropriate, culturally responsive, and reflective of universal design for learning. This course contains an integrated clinical experience, and students will complete focused observations at an approved early childhood center. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.

**ELE 6025 Social Emotional Learning: Birth-Age 8 Cr. 3**

Examination of children's social emotional development from birth through age 8, with focus on how development is shaped by cultural and linguistic contexts, including structural inequities, stress, adverse childhood experiences, and trauma. Exploration of how culture contributes to adult perceptions of behavior. Application of environmental and instructional strategies for positive child guidance that build a caring community of learners, prevent and address challenging behaviors, and support children during social conflicts. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELE 6030 Assessment of Young Children Cr. 3**

Strategies for assessment of young children from birth through kindergarten within family, community, and school-based contexts. Addresses how to analyze, interpret, document, and share assessment information with families and other professionals. Emphasis on developmentally, linguistically, and culturally appropriate assessment tools as a means to make informed choices about planning instruction and intervention in early learning settings. This course contains integrated clinical experience hours students will complete through assignments and in-class experiences with materials of practice (e.g., work samples, child data, observational video, curricular materials). Offered Yearly.

**Prerequisites:** (ELE 2000 with a minimum grade of C or ELE 6000 with a minimum grade of C), (ELE 2015 with a minimum grade of C or ELE 6015 with a minimum grade of C), (ELE 2020 with a minimum grade of C or ELE 6020 with a minimum grade of C), (ELE 2025 with a minimum grade of C or ELE 6025 with a minimum grade of C), and (ELE 2035 with a minimum grade of C or ELE 6035 with a minimum grade of C)

**ELE 6035 Inclusion, Equity, and Justice in Early Childhood Cr. 3**

Explores principles of inclusive teaching for all children across early childhood settings, with emphasis on equitable and meaningful access, participation, and supports. Examines developmentally appropriate and culturally and linguistically relevant, anti-bias, and evidence-based teaching approaches that reflect the principles of universal design for learning. Addresses foundational processes of early intervention and early childhood special education. Offered Yearly.



**ELE 6040 Intentional and Inclusive Teaching: The Content Areas (PK-K) Cr. 3**

Exploration of intentional and inclusive teaching strategies for prekindergarten and kindergarten-age learners in the content areas of language and literacy, the arts, mathematics, social studies, science, technology and engineering, and physical education. Building from the central concepts and developmental progressions of each content area to design planned and responsive learning experiences. Offered Yearly.

**Prerequisites:** (ELE 2000 with a minimum grade of C or ELE 6000 with a minimum grade of C), (ELE 2020 with a minimum grade of C or ELE 6020 with a minimum grade of C), and (ELE 2035 with a minimum grade of C or ELE 6035 with a minimum grade of C)

**Corequisite:** ELE 6045

**Restriction(s):** Enrollment limited to students in the College of Education.

**ELE 6041 Intentional and Inclusive Teaching: The Content Areas (PK-K) Cr. 3**

This course is designed for students seeking PK-3 teaching certification. Exploration of intentional and inclusive teaching strategies for prekindergarten and kindergarten-age learners in the content areas of language and literacy, the arts, mathematics, social studies, science, technology and engineering, and physical education. Building from the central concepts and developmental progressions of each content area to design planned and responsive learning experiences. Offered Yearly.

**Prerequisites:** ELE 2020 with a minimum grade of C or ELE 6020 with a minimum grade of C

**ELE 6045 Intentional and Inclusive Teaching: The Content Areas (PK-K) Clinical Experience Cr. 1**

This course offers community-based clinical experience for pre-service teachers seeking a birth-kindergarten teaching license. Experience includes focused observation of prekindergarten teaching and learning; lesson plan development and implementation; data collection and analysis of child learning; and collaboration with course instructor and mentor educators. Offered Yearly.

**Corequisite:** ELE 6040

**ELE 6050 Intentional and Inclusive Teaching: Infants and Toddlers Cr. 3**

In-depth exploration of intentional and inclusive teaching strategies for infants and toddlers. Designing integrated and purposeful learning experiences through play and exploration for all infants and toddlers, including those with identified disabilities and/or developmental delays. How to enact planned and responsive learning experiences that foster infant and toddler development across all domains and address content areas of language and literacy, the arts, mathematics, social studies, science, technology, and engineering in developmentally appropriate ways. Offered Yearly.

**Prerequisites:** (ELE 2000 with a minimum grade of C or ELE 6000 with a minimum grade of C), (ELE 2020 with a minimum grade of C or ELE 6020 with a minimum grade of C), and (ELE 2035 with a minimum grade of C or ELE 6035 with a minimum grade of C)

**Corequisite:** ELE 6055

**Restriction(s):** Enrollment limited to students in the College of Education.

**ELE 6055 Intentional and Inclusive Teaching: Infants and Toddlers Clinical Experience Cr. 1**

This course offers community-based clinical experience for pre-service teachers seeking a birth-kindergarten teaching license. Experience includes focused observation of home visiting and center-based infant and toddler care; lesson plan development and implementation; partnership with caregivers; and collaboration with course instructor and mentor educators. Offered Yearly.

**Corequisite:** ELE 6050

**ELE 6060 Community Contacts: Working with Families in Urban Settings Cr. 3**

Programs and services within the community that assist families in improving educational services for the child. Offered Yearly.

**ELE 6070 Family, Community and School Partnerships: Supporting Children's Learning Cr. 3**

Theory and practice in joining families, communities, and schools in promoting children's learning, development and success in school. Strengths and needs of families in a diverse, multicultural society, teachers' roles in concert with other disciplines in supporting families and building partnerships, and connection with community resources. Offered Yearly.

**ELE 6075 The Creative Arts in Early Childhood Education Cr. 3**

Supporting the whole child's learning and development through the visual and performing arts and through creative movement from birth to kindergarten. Materials, techniques, and strategies to foster children's appreciation of the arts and their confident, creative participation in the arts. Focus on creative processes, rather than products. Offered Yearly.

**Prerequisites:** ELE 6000 with a minimum grade of C, ELE 6015 with a minimum grade of C, and ELE 6020 with a minimum grade of C

**ELE 6080 Intentional and Inclusive Teaching: The Preschool Learning Environment Cr. 3**

Focus on developing strategies for intentional and inclusive preschool learning environments, including designing and evaluating environments based on learners' identities, strengths, interests, and support needs. Exploration of how to create safe and welcoming classroom communities through positive adult-child and child-child relationships and supportive classroom management. Offered Yearly.

**Corequisite:** TED 5791

**Restriction(s):** Enrollment limited to students in the College of Education.

**ELE 6090 Introduction to Infant Mental Health Theory and Practice Cr. 3**

Concepts of infant mental health theory and practice as a developmental framework for the observation, assessment and understanding of infant-parent behaviors and interactions as indicators of strengths and risks in the security of the attachment relationship. Offered Yearly.

**ELE 6100 Planning and Implementing Preschool Curriculum Cr. 3**

Planning, implementing, and evaluating all aspects of preschool curriculum: activities, routines, and working with staff and parents. Offered Yearly.

**Prerequisites:** ELE 6040 with a minimum grade of C

**ELE 6110 Planning Infant and Toddler Curriculum Cr. 3**

Planning effective relationship- and play-based curriculum, daily routines and experiences for infants and toddlers that are developmentally appropriate, culturally and linguistically relevant, anti-bias, and reflect principles of universal design for learning. Consideration of home-, community-, and classroom-based early learning settings for infants and toddlers. Offered Yearly.

**ELE 6130 Early Childhood Advocacy, Leadership, and Administration Cr. 3**

Becoming an early childhood professional who is ready to be an advocate, leader, and/or administrator. Examine policies, procedures, and systems necessary for high-quality early learning. Develop skills and strategies to ensure ethical and legal guidelines are met, including consideration of health and safety procedures and Michigan Department of Licensing and Regulatory Affairs. This course addresses Michigan Licensing and Regulatory Affairs requirements for Early Childhood Program Directors to have at least 2 semester hours in child care administration. Offered Yearly.

**Prerequisites:** ELE 2020 with a minimum grade of C or ELE 6020 with a minimum grade of C

**ELE 6140 Developmentally Appropriate Practice in Early Childhood and Early Childhood Special Education Cr. 3**

Explores key principles of developmentally appropriate practice for all young children from birth to age eight, highlighting strengths- and play-based teaching methods that promote joyful, engaged learning. Addresses how to recognize and support each child as a valued member of the learning community through interactional and environmental practices that honor children's and families' cultures, languages, and abilities. Offered Every Other Fall.

**ELE 6200 Diverse Children's Literature for Elementary Teachers Cr. 3**

This course is a survey of children's literature where we will explore, through reading and discussion, a wide range of genres and issues related to children's books with a focus on culturally responsive literature in the elementary school curriculum. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$17

**ELE 6205 Literacy Foundations Cr. 3**

This course is designed for undergraduate students seeking initial teacher certification. The focus is on theories and processes related to language and literacy development and the implications of these for curriculum and instruction in grades preK-6. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**ELE 6210 Literacy Methods I (PK-3) Cr. 3**

Theoretical and methodological understanding of teaching and assessing constructs of literacy appropriate for students in grades prekindergarten-3. Offered Every Term.

**Prerequisites:** ELE 6205 with a minimum grade of C

**Corequisite:** ELE 6211

**ELE 6211 Literacy Clinical Experience (PK-3) Cr. 1**

This course offers school-based, clinical experience for pre-service teachers seeking a prekindergarten-third grade teaching license. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with course instructor and mentor educators. Offered Every Term.

**Corequisite:** ELE 6210

**ELE 6215 Literacy Methods I (3-6) Cr. 3**

Theoretical and methodological understanding of teaching and assessing constructs of literacy appropriate for students in grades upper elementary grades 3-6. Offered Fall, Winter.

**Prerequisites:** ELE 6205 with a minimum grade of C

**Corequisite:** ELE 6216

**ELE 6216 Literacy Clinical Experience (3-6) Cr. 1**

This course offers school-based, clinical experience for pre-service teachers seeking a third through sixth grade teaching license. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with course instructor and mentor educators. Offered Every Term.

**Corequisite:** ELE 6215

**ELE 6225 Literacy Methods II (PK-6) Cr. 3**

Advanced theoretical and methodological understanding of teaching and assessing multiple constructs of literacy appropriate for diverse students in grades PK-6. Offered Fall, Winter.

**Prerequisites:** ELE 6210 with a minimum grade of C or ELE 6215 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the College of Education.

**ELE 6350 Mathematics Foundations (PK-6) Cr. 3**

Provides a coherent overview of the historical and foundations underlying the PK-6 mathematics content. Offered Every Term.

**Prerequisites:** MAT 1120 with a minimum grade of C

**ELE 6370 Mathematics Methods (PK-3) Cr. 3**

This course cultivates the mathematical knowledge, pedagogical skills and professional dispositions for teaching mathematics to children in grades PreK-3. It builds upon the foundational ideas about teaching mathematics in ELE 6375. Offered Fall, Winter.

**Prerequisites:** ELE 6350 with a minimum grade of C

**Corequisite:** ELE 6375

**ELE 6375 Mathematics Clinical Experience (PK-3) Cr. 1**

Offers school-based, clinical experience for pre-service teachers seeking a prekindergarten-third grade teaching license. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with course instructor and mentor educators. Offered Fall, Winter.

**Corequisite:** ELE 6370

**ELE 6380 Mathematics Methods (3-6) Cr. 3**

This course cultivates the mathematical knowledge, pedagogical skills and professional dispositions for teaching mathematics to children in grades 3-6. It builds upon the foundational ideas about teaching mathematics in ELE 6385. Offered Fall, Winter.

**Prerequisites:** ELE 6350 with a minimum grade of C

**Corequisite:** ELE 6385

**ELE 6385 Mathematics Clinical Experience (3-6) Cr. 1**

Offers school-based, clinical experience for pre-service teachers seeking a prekindergarten-third grade teaching license. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with course instructor and mentor educators. Offered Fall, Winter.

**Prerequisites:** ELE 6350 with a minimum grade of C

**Corequisite:** ELE 6380

**ELE 6390 Mathematics Instruction: P-8 Cr. 3**

Developing mathematics skills in elementary and middle schools. Students plan, implement and evaluate learning experience with children under professional guidance. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$58

**ELE 6500 Science Curriculum and Methods (3-6) Cr. 3**

Role of learning in science in the curriculum. Objectives, plans of organization for learning, resources materials. Overview of balanced program. Experiences with appropriate experiments, field trips, reference materials, audio-visual resources. Offered Every Term.

**Prerequisites:** (SCE 2100 with a minimum grade of C- and SCE 2105 with a minimum grade of C-) or (SCE 5100 with a minimum grade of C and SCE 5105 with a minimum grade of C)

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$15

**ELE 6550 Science Curriculum and Methods (PK-6) Cr. 2**

This course provides a foundation for instructional strategies that promote phenomenon-based learning and with a focus on engineering design and technology performance expectations for PK-6 elementary instruction. Offered Every Term.

**Prerequisites:** (SCE 2100 with a minimum grade of C- and SCE 2105 with a minimum grade of C-) or (SCE 5100 with a minimum grade of C and SCE 5105 with a minimum grade of C)

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$15

### **ELE 6600 Social Studies Methods (PK-6) Cr. 3**

In this course, teacher candidates explore and demonstrate knowledge and understanding of social studies with the incorporation of pedagogical knowledge. This includes lesson planning; development of objectives, outcomes, and assessments; curriculum content and organization; teaching strategies; and the implementation of instructional materials. Candidates also incorporate community resources in the planning process. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

### **ELE 6610 Current Developments in Early Childhood General and Special Education Cr. 1-6**

Topics on developments in research-based recommended practices on early childhood general and special education, covered through seminars and workshops; early intervention and educational implications for children from birth to eight years old. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Repeatable for 6 Credits**

### **ELE 6800 Methods for Integrated Curriculum and Pedagogy (PK-6) Cr. 3**

Develop unit/lesson plans within and across content areas in innovative and relevant ways. Understand socio-cultural and political contexts and factors that impact curriculum, teaching, and learning. Use effective, differentiated, and inclusive teaching strategies that attend to student strengths and needs. Utilize assessment approaches to inform instruction and student learning and advancement. Offered Fall, Winter.

**Prerequisites:** (ELE 6210 with a minimum grade of C or ELE 6215 with a minimum grade of C), (ELE 6370 with a minimum grade of C or ELE 6380 with a minimum grade of C), and (ELE 6550 with a minimum grade of C or ELE 6600 with a minimum grade of C)

**Corequisite:** ELE 6805

### **ELE 6805 Clinical Experience for Integrated Curriculum and Pedagogy (PK-6) Cr. 2**

Offers school-based, clinical experience for pre-service teachers seeking a PK-3 and/or 3-6 grade teaching certificate. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation for integrated curriculum; and collaboration with course instructor and mentor educators. Offered Fall, Winter.

**Prerequisites:** (ELE 6210 with a minimum grade of C or ELE 6215 with a minimum grade of C), (ELE 6370 with a minimum grade of C or ELE 6380 with a minimum grade of C), and (ELE 6550 with a minimum grade of C or ELE 6600 with a minimum grade of C)

**Corequisite:** ELE 6800

### **ELE 7020 Issues in Early Childhood Education Cr. 3**

Current issues in early childhood care and education including theories, research, best practice, and historical philosophies. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **ELE 7035 Infant and Toddler Developmental Assessment for Intervention Planning Cr. 3**

Developmental assessment of infants and toddlers for early intervention planning and infant mental health services. Focus on standardized assessment and evaluation procedures across child developmental domains and interpretation of results to inform interventions within natural environments. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

## **ELI - English Language Institute**

### **ELI 0300 Intermediate Speaking and Listening Cr. 2**

The focus of this course is to develop students' emerging academic listening and speaking skills. Students will apply listening and speaking strategies. They will also give short presentations. Emphasis will be on generating compound and complex sentences using simple academic vocabulary. Students will pronounce English sounds accurately and follow intonation and stress patterns appropriately. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### **ELI 0310 Intermediate Writing and Grammar Cr. 2**

The focus of this course is to produce well-developed paragraphs in a variety of rhetorical modes on academic topics. This course will culminate in an introduction to essay writing. Intermediate grammatical structures, such as complex sentences, adjective clauses, and the present perfect, will be introduced. Error-correction tasks, peer evaluations, and self-evaluations will develop self-editing skills. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### **ELI 0325 Intermediate Reading and Vocabulary Cr. 2**

The focus of this course is to increase students' vocabulary and comprehension of longer and more varied reading passages and to increase students' reading fluency and speed by reading multiple books from ELI library. In intensive reading activities, students will be to identify the topic, main ideas, and details in a passage as well as recognize the writers' point of view, purpose, and tone in simple academic texts when guided by questions. Students will also be able to understand the structure of a text with transition words and the relationship between the main points and the supporting details. The focus of the extensive reading activities will be on identifying overall meaning of texts and increasing reading speed. Class Readers will give the teacher the opportunity to help students acquire the art of extensive reading, to improve their skills, and to monitor their progress closely. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### **ELI 0400 High-Intermediate Speaking and Listening Cr. 2**

The focus of this course is to develop students' academic listening and speaking skills needed for successful extended academic discourse. Students will demonstrate detailed understanding of academic listening passages. Students will use speaking strategies for academic discussions and to summarize information. They will give speeches using visuals, transitions, and grammatically-correct sentences with academic vocabulary. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

### **ELI 0410 High-Intermediate Writing and Grammar Cr. 2**

The focus of this course is to develop students' essay writing skills and improve accuracy in grammar, mechanics, and spelling. Essays will be produced in a variety of rhetorical modes on academic topics that include some authentic sources. Students will also be introduced to summarizing and citing authentic sources. Complex grammatical structures will be introduced. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

**ELI 0425 High-Intermediate Reading and Vocabulary Cr. 2**

The focus of this course is to increase students' academic vocabulary and comprehension of academic reading passages and to increase students' reading fluency and speed by reading multiple books from the ELI library. In intensive reading activities, students will identify the structure, purpose, and connection between ideas in academic texts by finding main ideas, topic sentences, and supporting details in a passage, and recognize the writer's point of view, purpose, and tone in academic texts. Students will use strategies to discern meaning of words from context. They will acquire knowledge of word forms and will use dictionary skills to build vocabulary. The focus of the extensive reading activities will be on identifying overall meaning of texts and increasing reading speed. Class Readers will give the teacher the opportunity to help the students acquire the art of extensive reading, to improve their skills, and to monitor their progress closely. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

**ELI 0500 Advanced Speaking and Listening Cr. 2**

The focus of this course is to develop students' academic listening and speaking skills needed for successful extended academic discourse. Students will use listening strategies to show detailed understanding of lengthy academic listening passages. They will apply speaking strategies to share information and communicate with automaticity. Concentration will be on consistently speaking intelligibly and fluently. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

**ELI 0510 Advanced Reading and Writing Cr. 2**

Students will develop critical thinking skills through reading, writing, and classroom discussion. Students will write well-developed five- to eight-paragraph essays and relate assigned readings to their own experience. Students will learn how to incorporate outside sources into their essays and use appropriate citations. Advanced grammatical structures will be reviewed and expanded as necessary. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in English Language Institute; enrollment is limited to English Language Institute level students.

**ELI 0515 Research Skills Cr. 1**

The focus of this course is to introduce skills essential to conduct academic research at the university level. Students will learn how to search for and evaluate academic sources in the library and online databases as well as how to read, analyze, and use the information gathered. The course also focuses on paraphrasing and summarizing. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

**ELI 0520 English for Teaching Assistants Cr. 1**

American English language skills to improve teaching effectiveness of non-native speakers of English. Pronunciation, stress, intonation, speaking rate; oral presentation practice; cultural factors in U.S. university classroom. Not offered for degree credit. Offered Every Term.

**Repeatable for 4 Credits**

**ELI 0535 Advanced Grammar Cr. 2**

The focus of this course is to master students' communicative competence, or their ability to communicate effectively and appropriately, in writing and speaking. Advanced grammar points will be studied and practiced in ways that simulate academic discussions, scenarios, and assignments. Students will engage in a variety of communicative activities that demand grammatical accuracy. Note: out-of-class work time (or homework) can be equivalent to or even more than in-class work time. Offered Every Term.

**Restriction(s):** Enrollment is limited to English Language Institute level students.

**ELI 0699 Directed Study Cr. 1-4**

Meets the needs of English as a Second Language (ESL) students in their last stages of preparation for matriculation. Based on students' particular needs, instruction will be provided to strengthen various academic preparation skills, including listening and note-taking practice in an academic context, extensive and intensive reading, and expository and research paper writing. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in English Language Institute; enrollment is limited to English Language Institute level students.

**Repeatable for 8 Credits**

## ELR - Employment and Labor Relations

**ELR 1110 Work and Democracy: An Introduction Cr. 3**

**Satisfies General Education Requirement:** Civic Literacy

The course explores the role that labor and the labor movement have played in shaping democracy in the United States over the past two centuries and the limits of democracy in the workplace. It covers key political achievements of labor and workers' organizations and the contemporary challenges they face today. Key themes include labor and citizenship, industrial democracy, the role of the state in mediating labor relations, gender, race, sexuality and labor, the labor movement as a social movement, and power and politics in the workplace. Offered Every Term.

**Equivalent:** ANT 1110, HIS 1110, PS 1110

**ELR 2400 Survey of the Music Business and Labor Cr. 3**

Survey of the music business and labor issues in music. Overview of the economics of the music industry. Examination of problems in cultural careers and employment. Offered Yearly.

**ELR 2500 Introduction to Labor Studies Cr. 4**

Introduction to labor and employment relations: the essential nature, evolution and purpose of the twenty-first century workplace. Offered Every Term.

**ELR 3220 Labor in Media and Popular Culture Cr. 3**

The course explores labor behind and in popular culture in the United States. We will use themes of race, gender, technology, and class to explore popular culture, cultural workers, and their relationship to labor organizations in the 20th and 21st centuries. Our topics include music, video games, television and films, animation, streaming and influencer culture, the fast food industry, fashion, sports, and more. Offered Yearly.

**Equivalent:** HIS 3220

**ELR 3650 The Philosophy of Work Cr. 3**

This course examines philosophy of work and the relationship between political economy and the ethics of work. It explores the definition and meaning of work in different historical and cultural contexts and then focuses on practical philosophy and applied ethics with respect to work, occupational choice, and social responsibility. It also considers the tensions between work and individual rights and work and social justice. Offered Yearly.

**Equivalent:** PHI 3650

**ELR 4500 Applied Labor Studies Cr. 3**

Practical training in various labor relations specialties, such as collective bargaining or labor law. Consult coordinator on specific topic. Offered Every Term.

**Repeatable for 12 Credits**



**ELR 4700 Senior Seminar Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Research, reflection, discussion and analysis of labor relations practice. Offered Yearly.

**Prerequisites:** ELR 2500

**Repeatable for 6 Credits**

**ELR 4990 Directed Study Cr. 1-6**

Supervised reading and research in labor studies. Offered Every Term.

**Repeatable for 6 Credits**

**ELR 7000 Introduction to Labor and Employment Relations Cr. 3**

Introduction to the broad and changing field of labor and employment relations. Topics from the nature of work and role of labor in society to current labor and employment laws. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELR 7010 Health Care, Retirement, and Employee Benefit Plans Cr. 3**

Comprehensive understanding of employee benefits issues and practices. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELR 7400 Labor Relations Law in North America Cr. 3**

Federal and provincial regulation of union organizing, collective bargaining and union contract administration in the private sector. Content, administration and judicial interpretation of labor relations legislation in the United States, Mexico, and the Canadian province of Ontario. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELR 7420 Labor and American Politics Cr. 3**

Role of organized labor in American politics. Historical background, including rise of the UAW and its role in Detroit and Michigan politics. Recent declines; future of organized labor as a force in American politics. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELR 7430 Public Sector Labor Relations Cr. 3**

History, present functions, problems and current controversies surrounding public sector unions. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PS 6340

**ELR 7450 Employment Relations Law in North America Cr. 3**

Federal and state legislation affecting employee-employer relations: discrimination, pension, occupational safety and health, fair labor standards. Implementation of these policies, effect on worker-manager relations: Canada, Mexico, United States. Required core course. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELR 7550 Selected Topics in Employment and Labor Relations Cr. 3**

Various topics to be offered on a limited basis to meet needs of students with special interests not covered by regular course offerings. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**ELR 7600 Internship in Employment and Labor Relations Cr. 1-3**

Active involvement in employment and labor relations duties for an employer, union, government agency, or employment and labor relations professional; apprenticeship to a labor arbitrator; or other appropriate opportunity for industrial relations experience. At least eight hours per week; may be paid or unpaid. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the MA in Employ & Labor Relations program; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**ELR 7700 Current and Future Trends in Collective Bargaining Cr. 3**

Collective bargaining, current and future directions; emphasis on joint union-management approach to developing programs improving the quality of work life through workers' involvement in the decision-making process; examination of practical procedures to initiate and implement such programs. Offered Fall.

**Restriction(s):** Enrollment limited to students in the MA in Employ & Labor Relations program; enrollment is limited to Graduate level students.

**ELR 7990 Directed Study Cr. 1-4**

Intensive study of significant industrial relations topic against background of more general course work. Preparation of term paper required. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the MA in Employ & Labor Relations program; enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**ELR 7999 Master's Essay Direction Cr. 3**

Plan B alternative to a three-credit elective course. Opportunity for intensive research and writing experience on relevant subject matter. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment limited to students in the MA in Employ & Labor Relations program; enrollment is limited to Graduate level students.

**ELR 8000 International Employment Labor Relations and Human Resources Cr. 3**

Provides an understanding of the role of international ELR and divided into three areas of study: the economic, political, and social contexts of international ELR; strategic and functional ELR policies and practices cross-nationally; and cross-national comparisons on dimensions of efficiency, equity, and voice. Covers issues related to host, home and third country nationals; recruitment, selection, training, development and compensation in international contexts, expatriation and repatriation, and employment and labor relations. Studies of the HR context of selected countries are also included. Offered Intermittently.

**Prerequisite:** ELR 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ELR 8500 Strategic Analysis of North American Labor and Human Resources Issues Cr. 3**

Analysis on micro (game theory) and macro (planning) levels; integration of skills; student teams work as consultants for client organization on strategic labor or human resource problem. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the MA in Employ & Labor Relations program; enrollment is limited to Graduate level students.

## ENG - English

**ENG 1010 Basic Writing Cr. 3**

Extensive practice in fundamentals of college writing and reading in preparation for ENG 1020. Offered Every Term.

**ENG 1020 Introductory College Writing Cr. 3**

**Satisfies General Education Requirement:** Basic Composition Competency

A course in reading, research, and writing skills that prepares students to write successfully in college classes. Offered Every Term.

**ENG 1350 Writing Detroit Cr. 2**

This course uses public discussions and media accounts of select Detroit landmarks to engage students in identifying how debates about public spaces continue to shape our senses of community. Students will review the history of one Detroit landmark, evaluate the relationship of that landmark to social justice issues in Detroit, and then contribute to debate about that landmark by producing written presentations of their research. Offered Yearly.

**ENG 2200 Shakespeare: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Emphasis on the dramatic and literary qualities of the plays: representative comedies, tragedies and histories. Offered Yearly.

**ENG 2250 British Literature: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Introduction to major themes and some major writers of British literature from its beginnings to the present. Offered Yearly.

**ENG 2350 American Literature: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Introduction to major themes and some major writers of American literature from its beginnings to the present. Offered Yearly.

**ENG 2390 Introduction to African-American Literature: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Intermediate Comp Pre-2018, Intermediate Comp Post-2018  
Introduction to major themes and some major writers of African-American literature, emphasizing modern works. Reading and writing about representative poetry, fiction, essays, and plays. Offered Every Term.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**Equivalent:** AFS 2390

**ENG 2395 Stories of Detroit: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Introduction to representative writings about Detroit from literary, rhetorical, or cultural studies perspectives. Readings might include creative non-fiction, historical texts, or literature. Offered Yearly.

**ENG 2415 Geopolitics and Literature: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry  
Introduction to the study of literature and geopolitics through the exploration of literary and cultural texts. Offered Yearly.

**ENG 2420 Environmental Writing: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Intermediate Comp Pre-2018

Studies of nature and environmental writing from a literary, rhetorical, or cultural studies perspective. Readings might include creative non-fiction; historical texts; personal essays; and science fiction. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 2425 Rhetoric and Social Change: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Studies of writing about social change from a rhetorical perspective. Readings might include argumentative essays, autobiography, and manifestos. Offered Intermittently.

**ENG 2430 Digital Literacies: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Introduction to the study and composition of digital texts from a rhetorical perspective. Readings will include multimodal texts such as infographics, podcasts, and instructional videos. Offered Intermittently.  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 2435 Introduction to Digital Humanities Cr. 3**

Digital humanities scholarship has exploded over the last ten years. Early DH scholarship represented a niche in humanities fields like English and History, dominated by unique individuals who had both technical programming skills and experience in humanities research. Since its early days, the field of digital humanities has expanded significantly. New tools and platforms make DH research more accessible. Today, DH scholars work in a highly collaborative, interdisciplinary environment that place programmers and developers, information science specialists, and humanities scholars in active conversation. In this course, students will be introduced to these different elements – tools, methods, theories, and critical analysis – of the digital humanities in order to learn new ways to interpret artistic or cultural objects or ideas, social relationships, and historical processes. Offered Yearly.

**Equivalent:** HIS 2435

**ENG 2440 Introduction to Visual Culture: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts  
Introductory course in the reading of images from the perspective of literary and cultural studies. Attention to basic concepts, terms, and theories in the study of visual culture. Offered Intermittently.  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 2445 Comics and Graphic Novels: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Introduction to the history, forms, and reading practices of graphic storytelling through critical reading of, and writing about, comics and graphic novels. Offered Intermittently.

**ENG 2450 Introduction to Film Cr. 4**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts  
Examination of film techniques and basic methods of film analysis. Offered Every Term.  
**Fees:** \$15  
**Equivalent:** COM 2010

**ENG 2470 Television Culture: Writing about Texts Cr. 4**

**Satisfies General Education Requirement:** Cultural Inquiry  
A survey of American television history with an introduction to some of the aesthetic and theoretical concerns of television studies. Offered Intermittently.

**ENG 2500 Literature and Religion: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters  
Introduction to the study of literature and religion through the exploration of literary and cultural texts. Offered Intermittently.

**ENG 2510 Popular Culture: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters  
Introduction to the study of popular culture through the exploration of literary, cultural, and media texts. Offered Intermittently.  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 2530 Queer Literatures: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Introduction to the study of queer genders and sexualities through the exploration of literary and cultural texts. Offered Intermittently.  
**Equivalent:** GSW 2530

**ENG 2540 Global Literatures: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry  
Introduction to the study of global writing through the exploration of literary and cultural texts beyond the US or British national traditions. Offered Intermittently.

**ENG 2560 Children's and Young Adults' Literature: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Intermediate Comp Pre-2018

Introduction to major themes and issues in children's and YA literature from a literary or cultural studies perspective. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 2570 Women Writers: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry, Intermediate Comp Pre-2018

Introduction to the major themes and issues in writings by women. Reading and writing about representative fictional and non-fictional works. Offered Yearly.

**Equivalent:** GSW 2570

**ENG 2670 Introduction to Canadian Studies Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Survey of Canada in its cultural, literary, historical, geographical and political aspects; key concepts and social patterns that define the Canadian experience. Offered Intermittently.

**Equivalent:** GPH 2700, HIS 2700, PS 2700

**ENG 2720 Basic Concepts in Linguistics Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Analysis of the structure and use of language, focusing on English, from the standpoint of current linguistic practice. Topics include: phonetics and sound structure, word structure, syntax, semantics, language origin and history, dialects, language learning, animal communication, and language in social interaction. Offered Yearly.

**Equivalent:** LIN 2720

**ENG 2730 Languages of the World Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Survey of structure of major language families of the world, western and non-western; interrelationships of language and culture; universals and variations of universals in language and culture. Offered Yearly.

**Equivalent:** LIN 2730

**ENG 2800 Foundations of Creative Writing Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Writing in various creative forms. Frequent individual conferences and student readings for class criticism. Offered Fall, Winter.

**ENG 3010 Intermediate Writing Cr. 3**

**Satisfies General Education Requirement:** Intermediate Comp Pre-2018, Intermediate Comp Post-2018

Course in reading, research and writing for upper-level students. Emphasis on conducting research by drawing from the sciences, social sciences, humanities, and professions in preparation for Writing Intensive courses in the majors. Offered Every Term.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3020 Writing and Community Cr. 3**

**Satisfies General Education Requirement:** Intermediate Comp Pre-2018, Intermediate Comp Post-2018

Students develop and write about community-based service-learning projects. Requires community-based work outside of normal class time across the semester. Satisfies the Honors College service-learning requirement. Offered Fall, Winter.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 3050 Technical Communication I: Reports Cr. 3**

**Satisfies General Education Requirement:** Intermediate Comp Pre-2018, Intermediate Comp Post-2018

Instruction in basic technical writing skills. Requirements include writing summaries, letters, memos, instructions, and technical reports. Topics include audience and purpose analysis, textual and visual aspects of document design, and formatting. Offered Every Term.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3060 Technical Communication II: Presentations Cr. 3**

**Satisfies General Education Requirement:** Oral Communication Competency

Instruction in basic technical presentation skills. Requirements include informative presentations, oral briefings, needs assessments, progress reports, and formal proposals. Topics include collaborative teamwork, audience and purpose analysis, textual and visual aspects of presentation design, and formatting. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**ENG 3085 Introduction to Rhetorical Theory Cr. 3**

Introduction to the theories of rhetoric and writing studies, with attention to their role in English studies. Offered Yearly.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 3090 Introduction to Cultural Studies Cr. 3**

Introduction to the theories and practices of cultural studies. Examination of key theoretical terms and debates, to be put into critical practice through readings of various cultural forms. Offered Yearly.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 3095 Introduction to Race and Ethnic Studies Cr. 3**

Introduction to the theories of race and ethnic studies, with attention to literary and cultural studies. Offered Intermittently.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3100 Introduction to Literary Studies Cr. 3**

Introduction to the theories and practices of literary studies. Practice in responding to, analyzing, and writing about literary texts. Offered Yearly.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3105 Introduction to Film and Media Theory Cr. 3**

Introduction to the theories of film and media studies, with attention to their role in English studies. Offered Intermittently.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3110 English Literature to 1700 Cr. 3**

**Satisfies General Education Requirement:** Philosophy Letters  
Historical survey of British literature from the medieval period to 1700. Offered Yearly.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3120 English Literature after 1700 Cr. 3**

**Satisfies General Education Requirement:** Philosophy Letters  
Historical survey of British literature from 1700 to the present. Offered Yearly.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3130 American Literature to 1865 Cr. 3**

**Satisfies General Education Requirement:** Philosophy Letters  
Historical survey of American literature from its beginnings to 1865. Offered Yearly.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 3140 American Literature after 1865 Cr. 3**

**Satisfies General Education Requirement:** Philosophy Letters  
Historical survey of American literature from the Civil War to the present. Offered Yearly.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3180 Rhetoric to 1800 Cr. 3**

Historical survey of rhetoric from ancient cultures to 1800. Offered Yearly.

**Prerequisite:** ENG 1020 with a minimum grade of C

**ENG 3190 Rhetoric after 1800 Cr. 3**

Historical survey of rhetoric from 1800 to the present. Offered Yearly.

**Prerequisite:** ENG 1020 with a minimum grade of C

**ENG 3200 Grant Writing Cr. 3**

Prepares students to write successful grant applications in a range of professional situations. Offered Yearly.

**Prerequisite:** ENG 1020 with a minimum grade of C

**ENG 3210 Public Humanities Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Introduction to the uses of civic discourse within one or more humanities disciplines. Offered Intermittently.

**ENG 3250 Professional Editing Cr. 3**

Introduction to professional editing methods and practices. Offered Yearly.

**Prerequisite:** ENG 1020 with a minimum grade of C

**ENG 3470 Survey of African-American Literature Cr. 3**

**Satisfies General Education Requirement:** Philosophy Letters  
Historical survey of African-American literature from the early American period to the present. Offered Yearly.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 3800 Living Writers Cr. 3**

Introduction to contemporary fiction, poetry, and creative nonfiction by two living writers. Introduction to the practice of reading and analyzing creative literature as an important aspect of creating original writing. Offered Intermittently.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 3810 Poetry Writing Cr. 3**

Instruction and practice in the art of English and American poetic forms: patterns of sound, quantitative values, diction, metaphors and images. Offered Intermittently.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100



**ENG 3820 Fiction Writing Cr. 3**

Fundamentals of fiction, mainly the short story. Analysis of stories by established writers and by students. Frequent individual conferences. Offered Intermittently.

**Prerequisites:** ENG 1020 with a minimum grade of C, ENG 1020 with a minimum grade of P, ENG 1050 with a minimum grade of C, College Level Exam Program with a test score minimum of BC-BD, (AA) Exempt from Gen Ed MACRAO with a test score minimum of 100, Michigan Transfer Agreement with a test score minimum of 100, or (BA) Competencies Waiver with a test score minimum of 100

**ENG 4850 Research Methods Colloquium Cr. 3**

Introduction to methodologies for locating and integrating primary and secondary sources into research-based writing within the discipline of English studies. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**ENG 4990 Directed Study: Honors Program Cr. 1-3**

Offered Every Term.

**Repeatable for 6 Credits**

**ENG 4991 Honors Seminar Cr. 3**

Fulfills senior seminar requirement for English Honors students. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in English Honors; enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**ENG 4992 Honors Project Cr. 3**

Substantial scholarly project in literature, rhetoric, film, or a body of creative writing accompanied by an essay. Offered Every Term.

**Repeatable for 6 Credits**

**ENG 5005 Digital Storytelling Cr. 3**

The goal of the class is to introduce storytelling to students of professional communication and to allow students to create narratives in genres of professional communication of interest to them. Offered Every Other Year.

**ENG 5010 Topics in the Essay Cr. 3**

Advanced study of the essay, through approaches such as creative writing, literary analysis, or rhetorical analysis. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5030 Topics in Women's Studies Cr. 3**

Thematic, critical or generic study of women and literature. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Equivalent:** GSW 5030

**Repeatable for 9 Credits**

**ENG 5035 Topics in Gender and Sexuality Studies Cr. 3**

Advanced course on issues of sexuality and gender as mediated through literary and cultural study. Attention to critical theory as well as various literary and cultural forms. Topics to be announced in Schedule of Classes. Offered Yearly.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Equivalent:** GSW 5035

**Repeatable for 9 Credits**

**ENG 5070 Topics in Film and Media Cr. 4**

Critical and theoretical topics including style and work of specific filmmakers and philosophical approaches to film and other media. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Fees:** \$20

**Repeatable for 12 Credits**

**ENG 5080 Topics in Global and Transnational Studies Cr. 3**

Study of literature and culture from a global and/or transnational perspective. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5090 Topics in Critical Theory Cr. 3**

Advanced study of critical theory – such as cultural theory, film theory, or literary theory – with reference to primary texts. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5095 Topics in Visual Culture Cr. 3**

Advanced course in visual culture and its theory, and in the practice of reading images in a variety of literary and visual forms. Topics to be announced in the schedule of classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5150 Shakespeare Cr. 3**

For English majors and others interested in more intensive study. Some attention to Shakespearean scholarship. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**ENG 5340 Topics in British Literature Cr. 3**

Thematic, generic or historical perspectives on British literature; may cover multiple periods. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5360 Child Language Acquisition Cr. 3**

Despite its complexity and abstractness, young children acquire language without conscious effort or explicit instruction in a span of just a few years. This feat is unique to humans and is unmatched by any other species or even the most sophisticated computers. The course will present a comprehensive introduction to the study of child language acquisition. We will use a cross-linguistic approach to discuss some of the most important issues in language acquisition. We will not only talk about what children accomplish linguistically at various ages, but also discuss various theoretical approaches to explaining how children acquire linguistic knowledge in different domains, focusing on acquiring the sound inventory, words and sentence structure. We will look at some of the methods that have been employed to collect and analyze child language data. Offered Fall.

**Equivalent:** LIN 5360, PSY 5360

**ENG 5420 American Literature: 1865-1914 Cr. 3**

Survey of important literary texts that arose from cultural phenomena like post-reconstruction, urbanization, immigration, the suffrage movement, and native rights. Literary movements like Realism and Naturalism will be studied as well as influential writers such as Cahan, Chopin, Dreiser and Dunbar. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**ENG 5450 Modern American Literature Cr. 3**

Survey of culturally-significant writers, themes and movements since 1914, such as: the Harlem Renaissance, Modernism, Postmodernism; authors like Ellison, Hemingway, Morrison, Stein. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**ENG 5480 Topics in African American Literature Cr. 3**

Thematic, generic or historical perspectives: topics such as early black writers, Harlem Renaissance, African-American poetry, contemporary black writers. Topics to be announced in the Schedule of Classes. Offered Yearly.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5485 Topics in Race and Ethnic Studies Cr. 3**

Thematic, generic or historical perspectives on race and ethnic studies; may cover multiple periods. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5490 Topics in American Literature Cr. 3**

Thematic, generic, or historical perspectives on American literature; may cover writers of different periods. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5530 Topics in Poetry Cr. 3**

Advanced study of poetry, through approaches such as creative writing or literary analysis. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5550 Topics in Fiction Cr. 3**

Advanced study of fiction, through approaches such as creative writing or literary analysis. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5595 Topics in Global Literatures Cr. 3**

Advanced study of global writing through the exploration of literary and cultural texts beyond the US or British national traditions. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5685 Topics in Editing Cr. 3**

Thematic, generic or historical perspectives on editing; may cover multiple periods. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5690 Topics in Book History Cr. 3**

Advanced study of the history of reading, writing, and the production and circulation of texts. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5695 Publishing Practicum Cr. 3**

Students produce a creative or scholarly journal for undergraduates. Topics covered include editing, formatting, and publishing texts. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5700 Introduction to Linguistic Theory Cr. 3**

Introduction to the scientific study of language and methodologies of linguistic analysis: phonetics and phonology, morphology, syntax and semantics. Offered Yearly.

**Equivalent:** LIN 5700

**ENG 5710 Phonology Cr. 3**

The sound systems of a variety of human languages compared and contrasted in an introduction to the diversity and similarities in human sound systems. Theories of the nature of sound systems and methods of analysis in phonology and morphophonology will be presented. Offered Yearly.

**Prerequisites:** LIN 5700 with a minimum grade of D-, ENG 5700 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or ENG 2720 with a minimum grade of D-

**Equivalent:** LIN 5290

**ENG 5715 Morphology Cr. 3**

Morphology is a core area of Linguistics. The course will introduce the basic issues in the study of the internal structure of words, as well as the analytical techniques applied to morphological analysis. Students will learn how to analyze words of various (Indo-European and non-Indo-European) languages into morphemes, as well as to recognize morphological patterns and to utilize theoretical concepts in order to describe and analyze such patterns. In particular, the course will develop a theory of morphology in generative grammar, paying special attention to the question of whether particular morphological phenomena are primarily syntactic or primarily phonological in nature. Offered Fall.

**Prerequisites:** ENG 5700 with a minimum grade of D-, ENG 2720 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or LIN 5700 with a minimum grade of D-

**Equivalent:** LIN 5715

**ENG 5720 Linguistics and Education Cr. 3**

Introduction to linguistics with emphasis on applications to education. Offered Yearly.

**Equivalent:** LIN 5720

**ENG 5730 English Grammar Cr. 3**

Comprehensive analysis of English sentence structure and parts of speech using the terminology and descriptive approach of traditional grammar. Offered Yearly.

**Equivalent:** LIN 5730

**ENG 5740 Syntax Cr. 3**

The theory of grammatical systems examined through analysis of sentence formation in a variety of human languages, diversity and universals in grammar, and theories of syntax. Offered Yearly.

**Prerequisites:** LIN 5700 with a minimum grade of D-, ENG 5700 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or ENG 2720 with a minimum grade of D-

**Equivalent:** LIN 5300

**ENG 5745 Semantics Cr. 3**

Semantics is a core area of Linguistics. This course investigates meaning in natural language. It examines two foundational assumptions of natural language semantics: (i) that the meaning of a declarative sentence is its truth conditions and (ii) that the truth conditions of an expression are determined compositionally (that is, they are determined as a function of its parts and how they are put together). Students will then learn to distinguish between the entailments, implicatures, and presuppositions of an expression, where only the first are part of the expression's truth conditions. Offered Winter.

**Prerequisites:** ENG 5700 with a minimum grade of D-, ENG 2720 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or LIN 5700 with a minimum grade of D-

**Equivalent:** LIN 5745

**ENG 5750 Theories of Second Language Acquisition Cr. 3**

The complex processes involved in learning a foreign/second language, including the nature of inter language and the individual and collective factors influencing learner success and the effectiveness of instruction. Offered Yearly.

**Equivalent:** LGL 5750, LIN 5750

**ENG 5770 Sociolinguistics Cr. 3**

Identification of sociolinguistic principles used by English speakers and writers in choosing among the different English codes, styles, registers and social dialects in American and other communities. Offered Every Other Year.

**Equivalent:** LIN 5770

**ENG 5785 Academic Writing for Graduate Students Cr. 2**

Emphasis on learning and executing written genres common to research and presentation activities in graduate school. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** GS 5785

**Repeatable for 6 Credits**

**ENG 5790 Writing Theory Cr. 3**

Review of linguistic, rhetorical, and/or literary theories of written language. Analysis of the principles, purposes, types, and modes of written discourse. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**ENG 5795 Topics in Rhetoric and Writing Cr. 3**

Advanced course in rhetoric and writing. Attention to recent work in composition studies, rhetorical theory, and writing. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5820 Internship Practicum Cr. 3**

Students work 8-20 hours per week as tutors, writers, editors or researchers in publishing firms, businesses, government, and community organizations. Classroom sessions focus on reading and writing analytical texts related to workplace experience, and creating a portfolio of works created from the internship. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 6 Credits**

**ENG 5825 Grant, Proposal, and Public Writing Cr. 3**

This course guides students through the grant-writing process addressing the main components of a successful grant funding application. Students work in a collaborative environment to establish a relationship with an organization and to address a specific problem area that requires funding. Offered Every Other Year.

**Repeatable for 9 Credits**

**ENG 5830 Writing in the Workplace Cr. 3**

Intensive writing course that develops communication skills used in the workplace. Designed for students preparing to become technical writers/editors and students who will write as part of their professional work. Offered Every Other Year.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**ENG 5840 Topics in Professional Writing Cr. 3**

Select topics in the theory and practice of professional communication. Topics include the rhetoric and teaching of technical communication, analysis of on-the-job writing and rhetorical situations, and use of new communications technology. Topics to be announced in the Schedule of Classes. Offered Every Other Year.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 9 Credits**

**ENG 5850 Introduction to Scholarly Writing for Non-native English Speakers Cr. 2**

Intensive practice in writing at the graduate level for non-native speakers of English. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 5860 Topics in Creative Writing Cr. 3**

Topics include new genres, new media, and writing for public audiences. Models drawn from works written in diverse communities and cultures. Frequent individual conferences. Offered Intermittently.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and ENG 3800 with a minimum grade of B

**Repeatable for 9 Credits**

**ENG 5870 Poetry Writing Workshop Cr. 3**

The writing of poetry, conducted on a seminar basis; discussion and criticism of the work of students in the course. Frequent individual conferences. Offered Intermittently.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and ENG 3800 with a minimum grade of B

**Repeatable for 6 Credits**

**ENG 5880 Fiction Writing Workshop Cr. 3**

The writing of fiction, conducted on a seminar basis; discussion and criticism of the work of students in the course. Frequent individual conferences. Offered Intermittently.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and ENG 3800 with a minimum grade of B

**Repeatable for 6 Credits**

**ENG 5885 Topics in Creative Non-Fiction Writing Cr. 3**

Study and practice of hybrid forms that blend reportage and imaginative writing. Attention to essays, memoir, and personal writing. Frequent individual conferences. Offered Intermittently.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and ENG 3800 with a minimum grade of B

**Repeatable for 9 Credits**

**ENG 5895 Topics in Environmental, Nature, and Science Writing Cr. 3**

Advanced course in the study and practice of writing about the environment or the sciences. Specific topics to be announced in the Schedule of Classes. Offered Intermittently.

**Repeatable for 9 Credits**

**ENG 5990 Directed Study in English Cr. 1-3**

Advanced work for superior students whose program cannot be adequately met by scheduled classes. Course requires substantial written work. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Repeatable for 6 Credits**

**ENG 5992 Senior Seminar Cr. 3**

In-depth study and discussion of topics to be announced in the Schedule of Classes. Attention to the use of primary and secondary sources in research and writing. Each student produces a substantial research project. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in 2nd English or English; enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**ENG 5993 Writing Intensive Course in English Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ENG 6002 Teaching of Literary and Cultural Studies Cr. 2**

Instruction in the teaching of literary and cultural studies through both individualized and group training. Offered for graduate credit only. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 6003 Teaching Film and Media Studies Cr. 2**

Instruction and resources in the teaching of film and media studies through both individualized and group training. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 6005 Teaching Developmental Writing Cr. 2**

Emphasis on researching pedagogical strategies to develop course materials for the teaching of a developmental writing class. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**ENG 6006 Teaching Creative Writing Cr. 2**

As a discipline, creative writing straddles the Humanities and the Fine Arts, and so, of necessity, will this course. Although it complements the composition pedagogy curriculum, it will emphasize the practices particular to the creative writing classroom—practices that draw heavily from the studio art model. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 6010 Tutoring Practicum Cr. 3**

Integration of theories of language, learning and composition into a teaching practicum for prospective teachers at the secondary level and beyond. Offered Yearly.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Junior, Senior or Post Bachelor.

**ENG 6720 Topics in Language Cr. 3**

Topics such as: pragmatics, historical linguistics, history of English, language and gender, language and variation, language and evolution. Topics to be announced in the Schedule of Classes. Offered Yearly.

**Equivalent:** LIN 6720

**Repeatable for 12 Credits**



**ENG 6800 Advanced Creative Writing Cr. 3**

Writing in any of the creative forms. Work by students presented in seminar meetings; frequent individual conferences. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ENG 7001 Introduction to Doctoral Studies in English Cr. 3**

Training in fundamental critical and professional issues through reading and writing about problems, issues and texts central to English studies. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 7003 Contemporary Literary Theory Cr. 3**

In-depth reading of and education in contemporary literary works that are important to the discipline of English studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7004 Theoretical Issues in Cultural Studies Cr. 3**

Intensive reading in and writing about central theoretical issues in cultural studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7005 Film Theory Cr. 4**

Basic knowledge of film theory; especially for students who will have a concentration in film and media studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ENG 7006 Media Theory Cr. 4**

Important issues and theories in media studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ENG 7007 Composition Theory Cr. 3**

Seminar on such topics as: the writing process, computers in composition, theory of basic writing, theory of technical/professional writing. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7011 Studies in Medieval Literature Cr. 3**

Selected topics such as: Arthurian legend, the alliterative revival, problems in Chaucer criticism. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7012 Studies in Early Modern Literature Cr. 3**

Readings in representative works in literature in English of the early modern period. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7014 Studies in Early Modern Drama Cr. 3**

Studies in representative English dramas from the early modern period. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7015 Studies in Shakespeare Cr. 3**

Special problems in current scholarship and criticism. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7022 Studies in Romantic Literature and Culture Cr. 3**

Topics such as Wordsworth and Coleridge, crisis and triumph of the romantic imagination. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7024 The Rise of the Novel Cr. 3**

Tracing the development of the novel. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7025 Studies in Contemporary British Literature Cr. 3**

Studies in turn of the century literature and culture. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7032 Modernism and Modernity Cr. 3**

Studies in modernism as a literary and cultural movement and/or in modernity as a social, economic and cultural formation. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7033 Postmodernism and Postmodernity Cr. 3**

Studies in postmodernism as a literary and cultural movement and/or in postmodernity as a social, economic and cultural formation. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7042 Nineteenth-Century American Literature and Culture Cr. 3**

Advanced study of texts from before and after the Civil War, covering such topics as Transcendentalism, Fugitive Slave Narratives, Native American Autobiographies and Histories, Literary Realism, and the Southern Gothic. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7043 Twentieth-Century American Literature and Culture Cr. 3**

Advanced study of literary representations of crucial cultural issues as demonstrated among writers, movements, and selected texts. Possible writers include T.S. Eliot, Toni Morrison, Gertrude Stein; movements like Modernism and Postmodernism, and cultural phenomena like assimilation and reification may be treated. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7044 African-American Literature and Culture Cr. 3**

Advanced study of topics in African-American literature. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7045 Transnational American Race and Ethnic Studies Cr. 3**

This course provides an engagement with the critical scholarship in Transnational American Race and Ethnic Studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7046 Comparative American Literatures and Cultures Cr. 3**

Stud of the literatures and cultures of the Americas from a comparative perspective. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7053 Film and Media Genres Cr. 4**

Survey of the genres of film and media studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ENG 7054 Topics in Film and Media Studies Cr. 4**

Focus on selected topics in film and media. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ENG 7056 Comparative Media Cr. 4**

Instruction in media from a comparative perspective, including but not limited to film, digital, visual, and auditory media. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ENG 7061 Rhetorical Theory Cr. 3**

Survey of major rhetorical theories. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7062 Designing Research in Composition and Rhetoric Cr. 3**

Survey of major research methodologies in rhetoric and composition. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7063 Historical Studies in Composition and Rhetoric Cr. 3**

Survey of historical approaches to rhetoric and composition. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7064 The Teaching of Writing Cr. 3**

Survey of major pedagogical theories in composition studies. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7065 Writing Technologies Cr. 3**

Study of rhetorical and pedagogical issues related to writing and technology. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7066 Writing in Multiple Settings Cr. 3**

Survey of research into writing in specific settings such as urban and/or rural sites, workplaces, communities and organizations, or classrooms. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7710 Advanced Studies in Linguistic Structure Cr. 3**

Current issues in linguistic theory, including but not limited to topics in phonology, morphology, syntax, semantics. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** LIN 7710

**Repeatable for 9 Credits**

**ENG 7720 Advanced Studies in Language Use Cr. 3**

Current problems in language use, including issues in language variation, pidgins and creoles, first language acquisition, perception and production, and linguistic stylistics. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** LIN 7720

**Repeatable for 9 Credits**

**ENG 7800 Seminar in Creative Writing Cr. 3**

Intensive advanced study in creative writing and/or relevant critical theory. Topics such as: Writing the Novel, Narrative Perspective, Creative Text and Reader Response, to be announced in Schedule of Classes. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**ENG 7820 Graduate Internship Practicum Cr. 2**

Students work 6 hours per week gaining experience in alternatives to academic careers, typically as writers, editors or researchers in publishing firms, businesses, government, and community organizations. Students create a portfolio of works created from the internship. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ENG 7840 Technical and Professional Communication Cr. 3**

Survey of contemporary research in technical and professional communication. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 7850 Pedagogical Practicum I Cr. 2**

Instruction and resources to prepare newly-appointed graduate teaching assistants for teaching in the Wayne State composition program. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of English.

**ENG 7860 Pedagogical Practicum II Cr. 2**

Instruction and resources to support graduate teaching assistants during their first semester teaching in the Wayne State Composition Program. Offered for graduate credit only. Offered Winter.

**Prerequisite:** ENG 6001 with a minimum grade of B- or ENG 7850 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of English.

**Repeatable for 4 Credits**

**ENG 7870 Teaching Practicum in Technical and Professional Writing Cr. 2**

Instruction and resources in the teaching of technical and professional writing using both individualized and group training. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 7990 Directed Study in English Cr. 1-8**

Advanced work for English majors whose program of study cannot be adequately met by scheduled classes. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ENG 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**ENG 8001 Seminar in Literary and Cultural Studies Cr. 3**

Advanced special topics in literary and cultural studies. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 8002 Seminar in Literary and Cultural Studies Before 1700 Cr. 3**

Advanced special topics in literary and cultural studies before 1700. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 8006 Seminar in Film and Media Studies Cr. 4**

Advanced special topics in film and media studies. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ENG 8007 Seminar in Rhetoric and Composition Studies Cr. 3**

Advanced special topics in rhetoric and composition studies to be announced in Schedule of Classes. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 8008 Seminar in Theory Cr. 3**

Advanced special topics in theory to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 8998 Prospectus and Dissertation Chapter Workshop Cr. 2**

Intensive workshop in creating a dissertation prospectus and/or dissertation chapter. Attention to invention, development, peer support, and developing material for academic publishing audiences. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 8999 Master's Thesis Research and Direction Cr. 1-6**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ENG 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ENG 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ENG 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ENG 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ENG 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ENG 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## EPS - Educational Leadership and Policy Studies

**EPS 8180 Research Seminar Cr. 2-6**

Students develop research proposals, evaluate each other's research designs, and conduct any necessary pilot studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**EPS 8530 Seminar in the History of Education Cr. 4**

The growth and development of American education K-16, including events, circumstances, and influential ideas. Emphasis on the relationship between social, political, and economic change and the evolution of education. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EPS 8560 Administration in Higher Education Cr. 4**

Examination of alternative theories of organizational and administrative behavior as these relate to colleges and universities. Consideration of the issues of academic governance and college bargaining as they impact on the role of the administrator. Special projects according to positions held and particular interests of students. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EPS 8570 Contemporary Issues in Higher Education Cr. 4**

Intensive exploration of major issues and problems confronting higher education. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EPS 8710 Readings in General Administration Cr. 4**

Directed readings in the principles underlying administration in education, government, business and social agencies and other major areas. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** EDA 8710

**EPS 8880 Workshop in Administrative and Organizational Studies Cr. 1-10**

Practicum in the study of current problems affecting administrative and organizational studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 10 Credits**

**EPS 9600 Seminar in Research and Theory of Administration Cr. 3**

Research and theory relating to administration. Examination of textbooks, journals, and associations which promote educational administration research; review of the focus of inquiry and methodology for research in educational administration. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EPS 9610 Seminar in Educational Policy Development Cr. 4**

Role and nature of educational policies; observation, assessment, reporting, and discussion of policy-making bodies; review of policy research method; relationship of public values and public school policy. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**EPS 9620 Seminar in Educational Policy Initiatives Cr. 4**

Recent policy initiatives in elementary and secondary education, with some attention to higher education. Techniques of policy analysis are utilized. Offered Fall.

**Prerequisite:** EPS 9610 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**EPS 9630 Educational Policy Seminar Cr. 3**

The course focuses on developing a deeper understanding of the nature of public education governance related to the policy making process, policy implementation, and emerging policy issues within P-20 education. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

# ESG - Environmental Science and Geology

## **ESG 1010 Geology: The Science of the Earth Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

Introduction to continental drift and plate tectonic theory, geophysics and structure of earth's crust and interior; rocks and minerals; igneous and volcanic geology; work of running water, glaciers and ground water; geologic time; oceanography. One day field trip. Offered Every Term.

**Fees:** \$15

## **ESG 1011 Geology: The Science of the Earth Laboratory Cr. 1**

Introduction to continental drift and plate tectonic theory, geophysics and structure of earth's crust and interior; rocks and minerals; igneous and volcanic geology; work of running water, glaciers and ground water; geologic time; oceanography. Satisfies General Education Laboratory requirement when taken concurrently with ESG 1010. Offered Every Term.

**Corequisite:** ESG 1010

**Fees:** \$15

## **ESG 1020 Interpreting the Earth Cr. 4**

Sedimentary rocks, sedimentary structures and fossils as tools for interpreting the history of the earth. Paleocology of the geologic past and the structure of the earth are emphasized. Offered Fall, Winter.

**Prerequisites:** GEL 1010 with a minimum grade of C or ESG 1010 with a minimum grade of C

## **ESG 1050 Oceanography Cr. 4**

Introductory course in oceanography; includes origin of the ocean basins; ocean currents, waves and tides; life in the oceans and marine ecology; food, mineral and energy resources of the sea. Offered Intermittently.

**Fees:** \$15

## **ESG 1370 Meteorology: The Study of Weather Cr. 3**

This course covers the composition and structure of the atmosphere; the flows of energy to, from and through the atmosphere; and the resulting motions produced from small to planetary scales. The physical principles of atmospheric phenomena are stressed in the understanding of weather's impact on humans, particularly with severe weather. In summary, students are introduced to Earth's atmosphere and the dynamic world of weather. Offered Fall.

**Fees:** \$15

## **ESG 1500 Introduction to Environmental Science Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry

This introductory course is focused and organized around environmental problems and issues that we face in the world today using real stories. Students will be provided the scientific background to these issues, the tools for helping to build a sustainable future, and a strong foundation in environmental science education. Offered Fall.

**Fees:** \$20

## **ESG 2130 Mineralogy Cr. 4**

Mineral identification using physical and optical properties. Introduction to petrographic microscope and electron microscope/microprobe. Properties and occurrences of major mineral groups and their environmental significance. Check with instructor for field trip destination; field trip to Canada frequently part of course. Offered Fall.

**Fees:** \$150

## **ESG 3000 Introduction to Environmental Analysis Using Geographic Information Systems (GIS) Cr. 3**

Geographic Information Systems (GIS) is a powerful tool for environmental analysis. This course is designed to introduce students to the use of GIS to analyze, explore and visualize the spatial relationships and patterns of the biological, ecological, social and physical processes that can affect the environment and human health. Offered Fall.

## **ESG 3100 Air and Water in Environmental Systems Cr. 3**

Development of quantitative skills related to applying an understanding of the basic properties of air and water, and the dynamics of these fluids at rest and in motion, critical to addressing almost any environmental issue. Applications will include the role of air and water in environmental problems at multiple scales (and in both urban and natural settings) and integrating a systems approach. Offered Fall.

**Prerequisites:** (GEL 1010 with a minimum grade of D- or ESG 1010 with a minimum grade of D-) and (MAT 1800 with a minimum grade of D- or MAT 2010-6999 with a minimum grade of D-)

**Fees:** \$40

## **ESG 3160 Petrology Cr. 4**

Classification of igneous and metamorphic rocks using macroscopic and microscopic material and textural characteristics. Occurrence and alteration of each major rock type related to tectonic settings. Offered Winter.

**Prerequisites:** (GEL 1020 with a minimum grade of D- or ESG 1020 with a minimum grade of D-) and (GEL 2130 with a minimum grade of D- or ESG 2130 with a minimum grade of D-)

**Fees:** \$135

## **ESG 3250 Introduction to Remote Sensing Cr. 3**

This course is an introduction to the theory and techniques of remote sensing tools with emphasis on the Geospatial Sciences. It also includes discussion on image processing and analysis. Homework focus will be on learning basics of remote sensing by processing and interpreting of digital images. Offered Winter.

**Prerequisites:** (GEL 1010 with a minimum grade of D- and GEL 1011 with a minimum grade of D-) or (ESG 1010 with a minimum grade of D- and ESG 1011 with a minimum grade of D-)

## **ESG 3300 Structural Geology Cr. 4**

Description and interpretation of features which result from the origin or deformation of rock masses. Offered Winter.

**Fees:** \$135

## **ESG 3400 Principles of Sedimentology and Stratigraphy Cr. 4**

Processes which produce sediments, environments of deposition, changes after deposition; relationship between tectonics and sedimentation; origin of sedimentary strata; facies and correlations. Offered Fall.

**Prerequisites:** (GEL 1020 with a minimum grade of D- or ESG 1020 with a minimum grade of D-) and (GEL 2130 with a minimum grade of D- or ESG 2130 with a minimum grade of D-)

**Fees:** \$20

## **ESG 3500 Ecology and the Environment Cr. 3**

Introduction to key ecological concepts illustrated with contemporary environmental issues; basic population, community, ecosystem, landscape, and global ecology. Offered Fall.

**Prerequisites:** BIO 1500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** BIO 3500

## **ESG 3600 Special Topics in Geology Cr. 2-3**

Subjects of general interest to geology and environmental science majors. Topics may include: soil and groundwater pollution; petroleum geology; engineering geology; geochronology; isotope geochemistry; fate and transport of contaminants; applied geophysics; aquatic and terrestrial ecology. Offered Intermittently.

**Prerequisites:** GEL 1010 with a minimum grade of D- or ESG 1010 with a minimum grade of D-

**Repeatable for 16 Credits**

## **ESG 3650 Field Geology Cr. 1-6**

Field studies involving problems in individual geologic mapping and related techniques. Offered Intermittently.

**Repeatable for 6 Credits**



**ESG 3800 Team Research Cr. 2**

Students work in teams to design and implement a fieldwork based geologic research project. Students develop hypotheses, tests, and fieldwork plans, and they make thin sections and collect data on the scanning electron microscope, finishing with poster presentations. Offered Fall.

**Prerequisites:** GEL 1010 with a minimum grade of D- or ESG 1010 with a minimum grade of D-

**ESG 3990 Directed Study in Environmental Science and Geology Cr. 1-4**

Facilitates the student's research experience to further develop their undergraduate training in concert with their studies in the environmental science program. Offered Every Term.

**Repeatable for 4 Credits**

**ESG 4200 Geomorphology Cr. 4**

Principles underlying development of landforms by geologic agents. Offered Every Other Year.

**Prerequisites:** GEL 1020 with a minimum grade of D- or ESG 1020 with a minimum grade of D-

**Fees:** \$15

**ESG 4860 Research Cr. 3-4**

Primarily for honors students. Independent laboratory and field work. Offered Every Term.

**Repeatable for 8 Credits**

**ESG 4900 Internship in Environmental Science Cr. 2**

Approved work experience for students studying in environmental science that provides entry-level, career-related experience and workplace competencies. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Environmental Science Honors or Environmental Science.

**ESG 4998 Honors Thesis Cr. 3**

Preparation of an Honors thesis on a subject of general interest to environmental science and geology majors. Satisfactory completion assures Honors graduation, providing performance in preceding Honors courses at Honors level; to be taken under direction of Environmental Science and Geology faculty. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Senior.

**ESG 5000 Geological Site Assessment Cr. 4**

Geologic methods for Phase I Environmental Site Assessments. Application of geostatistics to site characterization. Offered Every Other Year.

**Prerequisites:** GEL 1010 with a minimum grade of D- or ESG 1010 with a minimum grade of D-

**ESG 5120 Environmental Geochemistry Cr. 4**

Survey of some of the geochemical interactions which take place in Earth environments (water, soils, atmosphere, etc.) brought about by natural and human-induced chemical processes. Offered Every Other Year.

**Prerequisites:** CHM 1000-6XXX with a minimum grade of C- and (GEL 1010 with a minimum grade of C- or ESG 1010 with a minimum grade of C-)

**Fees:** \$20

**ESG 5150 Soils and Soil Pollution Cr. 4**

Physical, chemical and mineralogical properties and classification of soils. Behavior of pollutants in soils and methods for reclamation. Offered Spring/Summer.

**Prerequisites:** CHM 1220 with a minimum grade of D- and CHM 1230 with a minimum grade of D-

**Fees:** \$40

**ESG 5210 Environmental and Applied Geophysics Cr. 4**

Introduction to geophysical methods used in characterizing the Earth's subsurface for environmental, engineering, and exploration applications. Students will learn the basics of near-surface seismic, gravity, magnetic, electrical resistivity, and electromagnetic methods and data analysis. Offered Every Other Year.

**Prerequisites:** (4 of (GEL 1010 with a minimum grade of D- or ESG 1010 with a minimum grade of D-), PHY 1230 with a minimum grade of D-, and PHY 1240 with a minimum grade of D- or 2 of PHY 2170 with a minimum grade of D- and PHY 2180 with a minimum grade of D-) and MAT 2010 with a minimum grade of D-

**Fees:** \$40

**ESG 5360 Hydrology and Water Resources Cr. 4**

A lecture-laboratory combination, with field trips, emphasizing the practical and applied aspects of hydrology and water resources management. This course looks at how water movement, storage and transformation on the Earth's surface is influenced by landscape characteristics, including human modifications of those characteristics, and weather. This course also explores those processes and modifications in a real-world context. While we introduce belowground aspects of the water cycle, this course focuses on surface water. Offered Every Other Year.

**Prerequisites:** MAT 1800 with a minimum grade of D-

**Fees:** \$55

**ESG 5420 Mathematical Methods in Earth Science Cr. 4**

An introduction to mathematical methods in Earth Science focusing on an introduction to programming in Matlab, using statistical methods, Monte Carlo, and building towards finite difference numerical methods. Offered Every Other Year.

**ESG 5450 Hydrogeology Cr. 4**

Characteristics and behavior of groundwater in earth materials. Principles of groundwater flow and solute transport. Introduction to numerical models and methods. Offered Every Other Year.

**Prerequisites:** GEL 1010 with a minimum grade of D- and MAT 2010-6XXX with a minimum grade of D-

**ESG 5510 Environmental Fate and Transport of Pollutants Cr. 4**

Basic principles of chemical behavior in the environment; sources, fate, and transport of contaminants. Offered Winter.

**Prerequisites:** (CHM 1220 with a minimum grade of D-, CHM 1240 with a minimum grade of D-, CHM 1230 with a minimum grade of D-, or CHM 1250 with a minimum grade of D-) and MAT 2010-6XXX with a minimum grade of D-

**ESG 5600 Special Topics in Environmental Science and Geology Cr. 4**

Subjects of general interest to Environmental Science and Geology majors. Topics may include: mapping, soil and groundwater pollution; petroleum geology; engineering geology; mathematical methods in Earth Science; Biogeochemical cycling in aquatic system; or others. Offered Intermittently.

**ESG 5610 Special Topics in Environmental Science and Geology Cr. 1**

Topics may be related themes such as current events, a specific area of geology or the Earth or Environmental Sciences, or the development of professional skills relevant to careers in the Earth and Environmental Sciences. Offered Every Other Year.

**Repeatable for 3 Credits**

**ESG 5620 Special Topics in Environmental Science and Geology Cr. 2**

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations and policies (EPA). The City of Detroit has faced many environmental issues, where several decades of industrialization resulted in a vast impairment of natural resources in urban ecosystems. Moreover, these environmental issues are more likely to occur in low-income and communities of color in the city. Offered Intermittently.

**Repeatable for 6 Credits**

**ESG 5650 Applied Geologic Mapping Cr. 4**

Geographic Information Systems (GIS) is a powerful tool for analyzing spatial datasets, and for this reason it can be applied to many geological problems. This course will provide students the necessary skills to use GIS with an emphasis on geological applications. It will focus on geologic aspects of GIS analysis such as spatial analysis, geologic mapping, topographic analysis, and the importation and interpolation of aerial photos/satellite images and field data. Offered Winter.

**Prerequisites:** GEL 1010 with a minimum grade of C or ESG 1010 with a minimum grade of C

**ESG 5700 Environmental Law and Policy Cr. 3**

This course provides an overview of the protection of environmental interests and needs in the American legal system, from a stable climate to safe drinking water. It begins by introducing students to the American legal system with foundational subjects of property law, tort law, constitutional law, and administrative law. It then surveys the major federal environmental statutes, including the National Environmental Policy Act, the Clean Air Act, the Clean Water Act, the Endangered Species Act, and laws regarding waste and remediation. Finally, the course explores environmental rights, including the public trust doctrine, state and federal constitutional rights, and the human right to a healthy environment. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**ESG 6100 Seminar: Environmental Science and Geology Cr. 1**

This course will expose students to current research topics as they listen to scientists giving seminars on their current research. This can help students in many ways including helping them to: i) refine their research interests; ii) network with the speakers to refine potential areas of Ph.D. study; iii) identify supplemental research areas outside their own subfields, possibly leading to cross-fertilization of research ideas; and iv) broaden their knowledge base in Geology and Environmental Science. Offered Fall, Winter.

**ESG 6160 Applied Remote Sensing Cr. 3**

This course focuses on remotely sensed data for geospatial applications. It is desirable for students to have prior knowledge in the basics of remote sensing, mapping, and GIS, and have experience with geospatial software, particularly ArcGIS, but it is not necessary. Students will develop a strong understanding of the tools and techniques used to display, process, and analyze remotely sensed data. Upon completion of this course, students will be able to develop analytical workflows to derive products and extract information from remotely sensed data for a broad range of applications. To assess the course learning, an independent final project for each student will be assigned in which students will demonstrate their ability to apply new skills to a real-world situation of personal or professional interest. Offered Yearly.

**ESG 6165 Biodiversity Changes in the Anthropocene Cr. 4**

This course is a study of the Anthropocene—what scientists argue is our current epoch in geologic time—emphasizing changes in Earth's biodiversity as a result of human activities. Following an introduction to the Anthropocene, how it can be defined, and key ecological principles of biodiversity, we will explore the history and context for various types of human-influenced change. We will then survey seven human drivers of biodiversity change—from climate and chemical changes to habitat alteration and resource use and finally species transport (including modern pandemics) and invasion. We will wrap up the course examining past, present, and future tipping points, shifting baselines, goals and targets for management, and attitudes. Through this course, you will be challenged to consider both domestic and global (indigenous and western) perspectives of biodiversity change and issues concerning environmental justice. Emphasis will be placed on biodiversity shifts as influenced by humans. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 6165

**ESG 6170 Spatial Statistics and Analyses for Environmental Applications Cr. 3**

Students will gain an understanding of spatial analysis methods and learning practical skills in using GIS and spatial analysis to discover features of spatial distribution. The class covers the methods of spatial analysis including measuring aspects of geometric features and identifying spatial patterns of geospatial objects that are represented as points, lines, networks, areal data, and 3-D surfaces. The material will be presented in readings, lectures, lab assignments, and a final project. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ESG 6180 Environmental DNA for Ecosystem Monitoring and Conservation Cr. 4**

This course is a study of environmental DNA principles, approaches, and applications to study anthropogenic change in the environment. Following an introduction to the field of eDNA, challenges and limitations, early landmark studies, and applications in a variety of ecosystems and types of research questions, we will shift our focus to the technical background for designing an eDNA study—including how eDNA samples are collected, processed, and analyzed— and wrap up with considerations of the future of DNA metabarcoding. Emphasis will be placed on eDNA as a tool for studying environmental changes caused by humans. Offered Yearly.

**Prerequisites:** BIO 3070 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 6185

**ESG 6190 Environmental Microbiology Cr. 4**

This course is a study of microbial diversity, approaches, and anthropogenic change in the environment. Following an introduction to the field of environmental microbiology, emerging global issues, and exploration of microorganisms in various habitats, we will focus on recent advances in characterization of microorganisms, pathogen transmission (including modern day pandemics), indicators of ecosystem health, and risk assessment. Through this course, you will also develop an understanding of how environmental microbiological samples are collected and processed, analyze how to track microbial sources and transport, and evaluate how microbiota interact with pollutants and ecosystems. Emphasis will be placed on microbiotic changes in the environment as influenced by humans. Offered Yearly.

**Equivalent:** BIO 6195

**ESG 6250 Fluvial Geomorphology Cr. 3**

This course is an introduction to the physical processes that shape rivers. The focus will be on wadable streams; however, many of the concepts will be applicable to larger rivers, such as the Missouri, Mississippi, Detroit and St. Clair Rivers. River restoration is a thriving industry, and professionals who understand the mechanics of rivers and sediment transport will be in great demand. Students will learn how the dimension, pattern and profile of a river will adjust to changes in hydrology and sediment supply. Students will apply equations to predict flow, velocity and sediment yield and transport, in addition to calculating stable channel dimensions and the extent of departure from stability. Students will learn the value of field measurements and how such observations can help reconstruct the historic disturbances to the fluvial system. Lastly, the role that humans and climate change play in river adjustment will be discussed. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ESG 6300 Emerging Organic Contaminants in Global Environment Cr. 4**

Contaminants of emerging concern (CECs), also known as emerging contaminants, involve major scientific and political issues. Contaminants of emerging concern can refer to a variety of different compounds, including but not limited to pharmaceuticals, personal care products, disinfection by-products, and some pesticides. Many of these chemicals have been detected in global air, water, sediment, soil, and biota. In this hybrid class, students will be in an active learning community and be exposed to real-world examples. Through this course, students will become familiar with common CECs, analytical methods, their source/occurrence, environmental behaviors, and potential treatment methods. Using the knowledge you have learned in this course, you will be asked to develop a research proposal for one class of CECs that is important in your field or of your interest. This course will prepare graduate students for professional work in environmental sciences, consulting, and management. Offered Fall.

**ESG 6320 Coastal Geology and Processes in the Great Lakes Cr. 3**

Waves and currents are the dominant forces shaping the shoreline. Students will learn how waves form and undergo transformation from deep water to the shoreline. Emphasis will be placed on a general understanding of these processes and their quantification with equations and numerical models. The geology and morphology of the shoreline will dictate its response, and student will spend a significant amount of time learning about the varying types of shorelines (till, dunes, bedrock, gravel/cobble, etc.), how they formed and their response to wave attack. Students will also learn how anthropogenic encroachment and climate change affect the coastal response, in addition to an introduction to coastal field methods. The material in this course will benefit students seeking employment as a coastal geologist, environmental engineer or environmental scientist. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ESG 6400 Isotopes: Applications in Geological and Environmental Sciences Cr. 4**

Our current understanding of our Earth and its environment are revolutionized by the applications of radioactive and stable isotopes of a large number of the first 95 elements in the Periodic Table. These isotopes, because of their suitable geochemical and nuclear properties, serve as tracer and chronometers to investigate a variety of topics that include chronology of rocks and minerals, paleoclimate, and paleo-environment, erosion and weathering of rocks and minerals, material transport within and between various reservoirs of earth processes. The major objective of this course is to introduce fundamental principles behind dating of Earth material that includes sediment, carbonate, aerosols, glaciers, groundwater/water masses, etc. Further, the foundations of fractionation of stable isotopes in the environment will be laid. Using isotopes as a powerful tool, a large number of applications in solving environmental problems (during Anthropocene) will be presented. Offered Yearly.

**Prerequisites:** ((PHY 2130 with a minimum grade of D- and PHY 2140 with a minimum grade of D-) or (PHY 2170 with a minimum grade of D- and PHY 2180 with a minimum grade of D-)), (CHM 1220 with a minimum grade of D- and CHM 1230 with a minimum grade of D-), and (GEL 1010 with a minimum grade of D- or ESG 1010 with a minimum grade of D-)

**ESG 7210 Environmental and Applied Geophysics Cr. 4**

Introduction to geophysical methods used in characterizing the Earth's subsurface for environmental, engineering, and exploration applications. Students will learn the basics of near-surface seismic, gravity, magnetic, electrical resistivity, and electromagnetic methods and data analysis. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ESG 7620 Seminar in Environmental Science and Geology Cr. 1-4**

This seminar seeks to explore topics relating to water, its infrastructure, availability, and human impacts to aquatic systems. Students will be introduced to drinking water management, and its availability in metropolitan areas from a multitude of experts ranging from academics (biology, anthropology, urban planning, engineering, pharmacology, and more) to community leaders. Potential solutions for issues relating to water equity, sustainable infrastructure and best management practices will be introduced and evaluated. This knowledge will allow students to engage in informed critical analysis of water issues from the perspective of availability, equity and evaluate the efficacy of sustainable infrastructure. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**ESG 7650 Applied Geologic Mapping Cr. 4**

Geographic Information Systems (GIS) is a powerful tool for analyzing spatial datasets, and for this reason it can be applied to many geological problems. This course will provide students the necessary skills to use GIS with an emphasis on geological applications. The course will focus on geologic aspects of GIS analysis such as spatial analysis, geologic mapping, topographic analysis, and the importation and interpolation of aerial photos/satellite images and field data. Offered Winter.

**Prerequisites:** GEL 1010 with a minimum grade of C or ESG 1010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ESG 7990 Directed Study in Environmental Science and Geology Cr. 2-8**

Subjects of general interest to Environmental Science and Geology majors at the graduate level. Topics may include in any area where the department of Environmental Science and Geology faculty are interested. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ESG 7997 Research in Environmental Science and Geology Cr. 3-4**

In-depth research on a particular topic producing an essay. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ESG 7999 Master's Essay Direction Cr. 3-5**

In-depth research on a particular topic producing an essay which will be comparable to a research publication. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Geology; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree.

**Repeatable for 5 Credits**

**ESG 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## ET - Engineering Technology

**ET 1500 Engineering Technology Trades Internship Cr. 1-6**

Industrial practice dealing with specific skill trades in engineering technology, under supervision in cooperative internship program. Offered Intermittently.

**ET 2140 Computer Graphics Cr. 3**

Solution of drafting problems and development of graphic presentations using computer-assisted drafting techniques. Use of programming techniques for direct solution of drafting/graphic problems and available software routines. Introduction to the use of computer plotters, CRTs, digitizers. Offered Fall.

**Fees:** \$15

**ET 2160 Computer Applications for Engineering Technology Cr. 2**

Various software programming environments and programming skills for engineering technology applications, including programming logic, file IO, data acquisition and processing, computer simulation, and communication protocols. Offered Fall.

**Prerequisites:** EET 2000 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ET 2200 Engineering Materials Cr. 3**

Application and characteristics, both physical and chemical, of metallic and nonmetallic materials, polymers, and composites used in industry. The primary process involved in producing these materials. Offered Yearly.

**Prerequisites:** CHM 1020 with a minimum grade of C-

**ET 2500 Co-op Experience Cr. 1-4**

Industrial practice under supervision in cooperative education. Work-study program. Report required. Offered Every Term.

**Repeatable for 4 Credits**

**ET 3030 Statics Cr. 3**

The objective of this course is to provide the student with a basic understanding of the analytical and graphical techniques that are used to determine the forces acting upon and within a body or structural component under static load. This course provides the necessary foundation for later studies in the analysis and design of structures as well as mechanical and electrical equipment. Offered Fall, Winter.

**Prerequisites:** ET 2140 with a minimum grade of C-, PHY 2130 with a minimum grade of C-, and ET 3430 with a minimum grade of C- (may be taken concurrently)

**ET 3050 Dynamics Cr. 3**

Kinematics; kinetics of particles; kinetics of translation and rotation of a rigid body; relative motion; use of equations of plane motion. Application of impulse and momentum principles; work and efficiency. Offered Yearly.  
**Prerequisites:** ET 3030 with a minimum grade of C- and MAT 3430 with a minimum grade of C-

**ET 3430 Applied Differential and Integral Calculus Cr. 4**

Limits, derivatives, applications of derivatives, definite integrals and their applications, and trigonometric functions. No degree credit in College of Liberal Arts and Sciences. Offered Every Term.

**Prerequisites:** MAT 1800 with a minimum grade of C-  
**Equivalent:** MAT 3430

**ET 3450 Applied Calculus and Differential Equations Cr. 4**

Continuation of MAT/ET 3430, including logarithmic and exponential functions, first and second order ordinary differential equations, vectors, polar coordinates, Laplace transforms, Taylor series, and Fourier series. No degree credit in College of Liberal Arts and Sciences. Offered Every Term.

**Prerequisites:** ET 3430 with a minimum grade of C- or MAT 3430 with a minimum grade of C-

**Equivalent:** MAT 3450

**ET 3850 Reliability and Engineering Statistics Cr. 3**

Probability, hypergeometric, binomial, Poisson, and normal probability distribution; confidence intervals; inferences concerning means; linear regression; introduction to statistical quality control and reliability; use of computers. Offered Fall, Winter.

**Prerequisites:** MAT 1800 with a minimum grade of C-, MAT 2010 with a minimum grade of C-, or ET 3430 with a minimum grade of C-

**ET 3870 Engineering Economic Analysis Cr. 3**

Techniques to economically evaluate major technical projects, rate of return and present worth, interest formulae, federal taxes, risk, inflation, and non-economic constraints. Offered Every Term.

**Prerequisites:** MAT 1800 with a minimum grade of C-, MAT 2010 with a minimum grade of C-, or ET 3430 with a minimum grade of C-

**ET 4990 Guided Study Cr. 1-6**

Supervised study and instruction in field selected by student. Offered Intermittently.

**Repeatable for 6 Credits**

**ET 4999 Senior Design Project Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Student designs, builds, and tests product; philosophy of design. Project proposal to be submitted by second week, final outcome to be completed by thirteenth week; progress reports, and oral presentation required. Students must be in one of their last two semesters before graduation in order to enroll in this course. Offered Fall, Winter.

**Prerequisites:** ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Senior.

**ET 5100 Fundamentals of Mechatronics and Industrial Applications Cr. 3**

Fundamentals of mechatronics and their applications in industry; building blocks of mechatronic products including sensors, proximity, displacement and rotational measurement sensors, force and torque measurement sensors, pressure sensors, accelerometers, and actuators; introduction of closed-loop control, electrohydraulic motion control, PLC mechatronics design by embedding sensors, actuators and controllers into mechanical components. Offered Fall.

**Prerequisites:** EET 3180 with a minimum grade of C- or MCT 3010 with a minimum grade of C-



**ET 5110 Advanced Programmable Controllers and Industrial Applications Cr. 3**

Introduces basic concepts and architecture of industrial control systems, sensors, measurement devices, PID controllers, and operating principles of PLCs. Students will learn how to operate the PLC programming software. Ladder logic programs are the main language, and functions and function blocks will also be taught for students to grasp high-level PLC-programming skills. Offered Winter.

**Prerequisites:** EET 3720 with a minimum grade of C- or MCT 3010 with a minimum grade of C-

**ET 5500 Graduate Industrial Internship Cr. 1-4**

Industrial practice under supervision in cooperative education. Oral presentation and written report describing professional experience required. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**ET 5600 Python: Industrial Applications Cr. 3**

Provides a combination of lectures and hands-on projects on how computer programming is applied in various industrial applications including robotics, automation and visualization applications. After an introduction to the basics of Python programming, students will then be provided with the opportunity to perform industrial projects using Python. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Doctorate, Senior or Post Bachelor; enrollment is limited to Graduate or Undergraduate level students.

**ET 5800 Industrial Robots Programming Cr. 3**

Provides an understanding of basic robotic theory (direct kinematics, inverse kinematics, links, joints, coordinates systems, and robotic vision theory) and applications. Students will program and maintain an R-J or higher robot controller with a standard application software package; identify the components of a vision system; install vision hardware; develop an application; perform error recovery procedures; and follow recommended safety practices. Labs, assignments and projects will be done using industrial robots: FANUC S 430 iw, FANUC LR Mate 200 iC, FANUC LR Mate 200 iD, and FANUC CR 4iA collaborative robot. Simulation and off-line programming will be done using Visual Components and ROBOGUIDE simulation software packages. Offered Fall.

**ET 5870 Engineering Project Management Cr. 3**

Provides the student with insights into human and organizational behavior affecting projects, in addition to the quantitative tools for the successful management of engineering projects. The course addresses a variety of project types and deals with how to select, initiate, operate and control as well as terminate a project. The role of project managers and their interaction with the rest of the organization is highlighted. Offered Fall, Winter.

**Prerequisites:** MAT 1800 with a minimum grade of C-, MAT 2010 with a minimum grade of C-, or ET 3430 with a minimum grade of C-

**ET 5995 Special Topics in Engineering Technology I Cr. 1-4**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Repeatable for 8 Credits**

**ET 7300 Advanced Battery Systems for Electric-drive Vehicles Cr. 3**

Aims to familiarize students with advanced battery technologies and their applications in hybrid and electric vehicles. Contents include: a descriptive overview of energy sources and conversions, HEV/PHEV/ EV technology, hybrid powertrain configuration and components, in-vehicle energy storage systems, electrochemistry fundamentals, battery power and capacity/energy, battery system design (cell, module and pack), Battery Management System (BMS), cell monitoring and balancing, thermal management, on-board diagnostics, battery charging schemes and systems. Offered Fall.

**Prerequisite:** MCT 5150 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** EVE 7300

**ET 7430 Methods of Engineering Analysis Cr. 4**

This course aims to provide the theory and computer applications of differential equations, partial derivatives, Laplace transforms, Fourier series, matrices, and vectors. It also encourages students to use software programming environments to solve numerical problems. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ET 7800 Industrial Robots Dynamics and Control Cr. 3**

Covers the direct and inverse dynamic problem for industrial robots; Newton-Euler and Lagrange-Euler equations of robot arm motion; a new automatic separation method (ASM) for automatic generation of dynamic equations; robot trajectory generation; control of Robot Manipulators (PID control, design of control systems in State-Space and computed torque technique); sensing (range sensing, proximity sensing, touch sensing, force and torque sensing) using available Robots and Collaborative robots; current trends and research in Industrial Robotics and Cobotics. Offered Winter.

**Prerequisite:** MIT 5700 with a minimum grade of C or ET 5800 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ET 7990 Directed Study Cr. 1-8**

Supervised study and instruction in an advanced topic. Outline of proposed study and petition must be submitted to graduate committee in advance of registration for approval. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ET 7995 Special Topics in Engineering Technology II Cr. 1-4**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ET 7999 Master's Project Cr. 1-6**

Design, fabrication, system optimization, and applications of graduate level material. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

## ETT - Electrical Transportation Technology

**ETT 3190 Fundamentals of Automotive Electrical and Electronic Systems Cr. 3**

Foundations in contemporary automotive electronic systems. Topics include: review of automotive electronics, basic circuit building blocks, vehicle controllers, networking, diagnostics, sensors, actuators, and power electronics. Offered Fall.

**Prerequisites:** EET 2000 with a minimum grade of C- and PHY 2140 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ETT 4150 Fundamentals of Hybrid and Electric Vehicles Cr. 3**

Hybrid and electric vehicle technologies: concepts and design, energy analysis, unified model approach, hybridization, hybrid powertrain architectures, IC engines for HEVs, transmissions used in HEVs, on-board energy storages. Offered Winter.

**Prerequisites:** ET 3430 with a minimum grade of C- and PHY 2140 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ETT 4310 Energy Storage Systems for Hybrid and Electric Vehicles Cr. 3**

Overview of advanced battery technologies and applications in EV/HEV, hybrid powertrain configuration and requirements, in-vehicle energy storage systems, battery development, thermal management, control systems, cell monitoring, balancing, and on-board diagnostics. Offered Winter.

**Prerequisites:** ET 3430 with a minimum grade of C- and PHY 2140 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ETT 4410 Introduction to Advanced Energy Storage Cr. 3**

Comprehensive coverage of energy storage for automotive and renewable energy; battery technology; hydrogen electrochemical cells and regenerative fuel cells; mechanical energy storage; thermal and chemical storage; superconductor. Offered Fall.

**Prerequisites:** ET 3430 with a minimum grade of C- and PHY 2140 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ETT 4650 Power Electronics and Charging Infrastructure for Hybrid and Electric Drive Vehicles Cr. 3**

Principles of power systems, distribution systems, and ac/dc charging systems; applications of power electronic technologies in traction control, battery management, and regenerative braking for electric drive vehicles. Offered Winter.

**Prerequisites:** EET 3150 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ETT 4740 In-Vehicle Networking and Embedded Systems Cr. 3**

Principles of data communications and real time embedded systems networking, with emphasis on in-vehicle networking. Controller Area Networks and FlexRay are covered. Project-oriented course utilizing various hardware/software. Offered Yearly.

**Prerequisites:** EET 3100 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

## EVE - Electric-drive Vehicle Engineering

**EVE 5110 Fundamentals of Electric-drive Vehicle Engineering Cr. 3**

Cover engineering fundamentals and basic design of electric-drive vehicle powertrains by understanding and analyzing the relevant multi-physics and applying the associated equations and simple models. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** ME 5115

**EVE 5115 Fundamentals of Electric-drive Vehicle Modeling Cr. 4**

Covers engineering and modeling fundamentals and basic design of electric-drive vehicle powertrains by understanding and analyzing the relevant multi-physics and applying the associated equations and simple models. MATLAB script m-file is required for all assignments. Offered Fall.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to Graduate or Undergraduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** ME 5115

**EVE 5120 Fundamentals of Battery Systems for Electric and Hybrid Vehicles Cr. 4**

Fundamental electrochemistry and engineering aspects for electric propulsion batteries, including lead acid, nickel metal hydride, and lithium ion technologies. Offered Intermittently.

**Equivalent:** AET 5310, CHE 5120, ME 5215

**EVE 5130 Fundamental Fuel Cell Systems Cr. 4**

Introduce various types of fuel cells, materials properties of electrodes and polymeric membranes, and electrochemical mechanisms. Reforming of various types of hydrocarbon fuel to hydrogen, and reforming technology. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** AET 5110, CHE 5110, ME 5110

**EVE 5410 Power Electronics and Control Cr. 4**

Control of electric energy using power electronic semiconductor devices; mathematical analysis of circuits containing these devices; design, modeling and control of power converters; applications of power electronic converters. Offered Spring/Summer.

**Prerequisites:** ECE 4330 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** ECE 5410

**EVE 5450 Control and Optimization for Integrated Electric-drive Vehicle Systems Cr. 4**

Understanding of how to control a system using modern control theory, how to optimize the performance of a system using various optimization technologies, and how to apply the control and optimization technologies to EDV systems. Offered Winter.

**Prerequisite:** EVE 5430

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Senior; enrollment limited to students in the College of Engineering.

**EVE 5600 Integrated Product Development Cr. 3**

Product development process: product architectures, concurrent engineering. Integration of marketing, design, and manufacturing functions for product development. How such processes are designed to account for various manufacturing and other business constraints to ensure that customer needs are met. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** AET 5600, IE 6405

**EVE 5700 Electric-drive Vehicle Capstone Design Cr. 4**

The class is divided into teams competing on same or similar Electric-Drive Vehicle (EDV) system design project on contemporary EDV issues with relevant vehicle powertrain and energy system contents, involving energy, environmental, safety and economic analyses. Offered Winter.

**Prerequisites:** EVE 5110 and (EVE 5310 or EVE 5430)

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Senior; enrollment limited to students in the College of Engineering.

**EVE 5810 Power Management for Advanced Energy Storage Systems and its Applications Cr. 4**

Operating principles and modeling of energy storage techniques; control and power management, power electronic converters, electric machines, and power systems; power management strategies of hybrid energy systems including HEV and alternative energy systems. Offered Fall, Winter.

**Prerequisites:** ECE 4470

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** AET 5810

**EVE 7300 Advanced Battery Systems for Electric-drive Vehicles Cr. 3**

Aims to familiarize students with advanced battery technologies and their applications in hybrid and electric vehicles. Contents include: a descriptive overview of energy sources and conversions, HEV/PHEV/ EV technology, hybrid powertrain configuration and components, in-vehicle energy storage systems, electrochemistry fundamentals, battery power and capacity/energy, battery system design (cell, module and pack), Battery Management System (BMS), cell monitoring and balancing, thermal management, on-board diagnostics, battery charging schemes and systems. Offered Fall.

**Prerequisite:** EVE 5120 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ET 7300

**EVE 7310 Electric-drive Vehicle Simulation and Control Cr. 4**

Cover modeling, simulation and control of electric-drive vehicle powertrain including plant modeling, controls model development, and in-the-loop controls testing. Proficiency in MATLAB/Simulink is required. Offered Winter.

**Prerequisites:** EVE 5115 with a minimum grade of B- or ME 5115 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** ME 7315

**EVE 7450 Embedded Systems for Vehicles Cr. 4**

Advanced embedded processors and operating systems, power modules, auxiliary execution engine, display interface, memory controller, USB controller, DMA, I/O, initialization and configuration, programmable serial controller, serial audio interface, and video input. Offered Fall.

**Prerequisite:** EVE 5430 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad or Graduate Certificate; enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**EVE 7990 Directed Study Cr. 1-4**

Independent projects on subjects of interest in electric-drive vehicle engineering. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad or Graduate Certificate; enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Repeatable for 4 Credits**

**EVE 7991 Internship in Industry Cr. 1**

Industrial internship in automotive vehicle-related technologies, particularly in vehicle electrification, and related components and/or systems. Internships are off-campus experiential learning activities designed to provide students with opportunities to make connections between the theory and practice of academic study and the practical application of that study in a professional work environment. Internships are completed under the guidance of an on-site supervisor and a faculty sponsor, who in combination with the student will create a framework for learning and reflection. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**EVE 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad or Graduate Certificate; enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Repeatable for 8 Credits**

## FIN - Finance

**FIN 3050 Personal Financial Planning Cr. 3**

Principles of finance applied to personal financial affairs. Topics include: goal formation, cash budgeting, time value of money, insurance, real estate, banking, investments, tax planning, pensions, estate planning. Offered Intermittently.

**FIN 3290 Business Finance Cr. 3**

Principles of financial administration, with applications to problems of financial analysis, control, and planning by firms under changing economic conditions. This course satisfies Society of Actuaries Validation by Educational Experience (VEE) in Accounting and Finance when taken with ACC 3010 with a B- or better in each course. Offered Every Term.

**Prerequisites:** BA 2300 with a minimum grade of C (may be taken concurrently)

**FIN 4500 Business Co-op Assignment Cr. 0**

Must be elected by Professional Development Co-operative Program students during work semester. Offered for S and U grades only. No credit toward degree. Opportunity to put theory into practice on the job. Students will normally be assigned to cooperating business organizations for internship periods of one semester. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the School of Business.

**Equivalent:** ACC 4500, MGT 4500, MKT 4500

**FIN 4990 Directed Study in Finance Cr. 1-3**

Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member. Offered Every Term.

**Prerequisites:** ACC 5100 with a minimum grade of D- and FIN 5210 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**FIN 5000 Financial Statement - Analysis & Modeling Cr. 3**

Introduction to foundational concepts used in corporate financial statement analysis, including application of specific financial modeling tools, and an overview and practical application of techniques necessary to build dynamic cash flow models. The course includes advanced discussions on the relationship between the financial statements, and using Excel, students will learn how to build analytical and proforma models themselves to understand the decision-making inputs used by corporate finance professionals. The course concludes with a discussion on professionally presenting model outputs, forecasts, valuations, and transactional analyses for management review. Successful completion of introductory courses in accounting and finance is required for this class. It is highly recommended that students have a basic working knowledge of Microsoft Excel prior to enrollment in the course. Replaces ACC 5000 for finance majors. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** ACC 3010 with a minimum grade of C and FIN 3290 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**FIN 5090 Capital Markets Cr. 3**

Detailed discussion of financial intermediaries; the capital markets; money markets, macroeconomics policies and interest rates. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** FIN 3290 with a minimum grade of B (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**FIN 5200 Startup Funding and Profitability Cr. 3**

Introductory course that will expose students to accounting and financial information. This foundational knowledge will be used to give students the financial language and understanding of the development and operations of new ventures. The ideal audience for this course is undergraduate students. Additionally, others who are interested in starting their own firm or working at a startup, or who are interested in careers in venture capital or private equity could benefit. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**FIN 5215 Investment Fundamentals Cr. 3**

Focus on modern investment analysis; fundamentals of asset classes including stocks, bond, derivatives, as well as index and mutual funds; risk and return analysis and how characteristics of a portfolio differ significantly from those of the securities from which they are formed; investigation of the Capital Asset Pricing Model (CAPM) and other risk-return models, including Arbitrage Pricing Theory (APT). Tools to manage investment risk and detect mispriced securities. Offered Fall, Winter.

**Prerequisites:** FIN 5000 with a minimum grade of C (may be taken concurrently), BA 3400 with a minimum grade of C, and FIN 3290 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**FIN 5220 Portfolio Management Cr. 3**

The student managed investment fund course gives students real world experience investing and managing a long only, \$2 million equity portfolio. Students apply concepts related to equity asset valuation, equity research, and portfolio management to monitor and evaluate current holdings, and recommend new investments for the fund. Offered Fall, Winter.

**Prerequisites:** FIN 5000 with a minimum grade of C and FIN 5215 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**FIN 5270 Advanced Business Finance Cr. 3**

Risk analysis, working capital management, capital budgeting and valuation theories. Role of financial management in maximizing value of the firm. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** FIN 3290 with a minimum grade of C, BA 2300 with a minimum grade of C, and FIN 5000 (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**FIN 5280 Entrepreneurs' Ecosystem Cr. 3**

Focuses on resources available to the entrepreneur. Exposes the students to angel and superangel funding, microloans, crowdfunding, and various types of the venture capital funding avenues. Examines the challenges of financing and structuring a deal with financiers. Provides experience in pitching a business idea and understanding the anatomy of a successful business plan. Offered Winter.

**Prerequisite:** FIN 3290 with a minimum grade of C and FIN 5270 with a minimum grade of C

**FIN 5290 Topics in Finance Cr. 3**

Current developments in such areas as: working capital management, mergers and acquisitions, pension fund management, use of options and futures, high-risk debt management, hybrid securities, management of financial institutions, international financial issues, or market microstructure. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**FIN 5320 Principles of International Finance Cr. 3**

Financial management in an international context. Determination of exchange rates; their effect on the economy and financial securities; operation of multinational firms (MNCs) in this environment. Measurement and management of MNC exchange-rate exposures; tax regulatory arbitrage; international portfolio investment; determination of cost of capital for a foreign direct investment project and construction of its capital budget. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** FIN 3290 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**FIN 5330 Bank Management Cr. 3**

Analysis of the functional areas of management of banks and related financial institutions, including deposits, cash, loans and asset accounts. Discussion of current topics including liquidity, capital adequacy, electronic fund transfers and mortgages. Offered for undergraduate credit only. Offered Intermittently.

**Prerequisites:** FIN 3290 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**FIN 5340 Valuation Cr. 3**

Asset valuation is at the heart of intelligent financial decision-making, whether that takes the form of portfolio allocation, in deciding the appropriate price to pay or receive in a corporate merger or acquisition, investing in publicly traded securities or private firms, valuation of real estate, even valuing intangible assets such as brands. This course will provide you with the necessary tools, techniques, and models to address almost any valuation problem in finance. Offered Yearly.

**Prerequisites:** FIN 5270 with a minimum grade of C-

**FIN 5380 Introduction to Fintech Cr. 3**

This course is for students interested in exploring emerging topics in financial technology (i.e., Fintech). Students will develop a broad but solid understanding of the recent innovations in Fintech such as blockchain, cryptocurrencies, peer-to-peer lending, crowdfunding, and initial coin offerings. Basic concepts in artificial intelligence (AI) and machine learning techniques will be discussed. In groups, students will develop a fintech startup business model and give a presentation as a final project. Offered Intermittently.

**Prerequisites:** FIN 3290 with a minimum grade of C-

**FIN 5400 Real Estate Investment Cr. 3**

Introduces students to real estate – residential and commercial (office, retail, industrial, multi-family) – the largest asset class in the US economy. The sequential units of learning will be 1) description, 2) analysis, 3) valuation. In whatever business a graduate will work, the successful student will know enough to contribute to real estate decisions. Offered Intermittently.

**FIN 5890 Internship in Finance Cr. 3**

Minimum ten-page paper (excluding exhibits) discussing a problem or opportunity facing the sponsor organization, application of financial concepts, and outcomes relative to the problem or opportunity; summary presentation to department chairperson. Offered for undergraduate credit only. Offered Intermittently.

**Prerequisite:** TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.



**FIN 6000 Advanced Financial Analysis and Modeling Cr. 3**

This intensive finance modeling course goes beyond basics to build intermediate and advanced Excel skills for business analysis and decisions. Students will master analytical capital budgeting techniques to evaluate investments; perform detailed valuation analysis with discounted cash flows, precedents, comparables, and scenarios; build a leveraged buyout model to calculate potential equity returns under various debt financing assumptions; and utilize statistical models for correlation and regression modeling. Offered Intermittently.

**Prerequisites:** FIN 5000 with a minimum grade of C

**FIN 6996 Corporate Financial Strategies Cr. 3**

Advanced financial strategies dealing with cost of capital, mergers and other corporate reorganizations, investment banking and capital acquisition, dividend policy, lease financing, pension funds, convertible securities, international perspectives. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** FIN 5000 with a minimum grade of C, FIN 5215 with a minimum grade of C, and FIN 5270 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**FIN 6997 Derivative Securities Cr. 3**

Valuation of options, futures and swaps contracts on equities, fixed instrument securities and foreign exchange; use of these derivatives for risk management; brief review of empirical evidence. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** FIN 5215 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**FIN 7000 Applied Financial Analysis Cr. 3**

This course will bridge the gap between the study of financial theory and analysis, and its practical application. The course provides foundational concepts for corporate financial statement analysis, including an overview of specific financial modeling tools, and techniques necessary to build ratio sets and dynamic cash flow models. The course includes advanced discussions on the relationship between the financial statements and tools used for decision-making by professionals. The course concludes with a discussion on professionally presenting model outputs, forecasts, valuations, and transactional analyses for management review. It is highly recommended that students have a basic working knowledge of Microsoft Excel prior to enrollment in the course as a computer with the most recent version of Excel will be required in every class session. Offered Intermittently.

**Prerequisite:** BA 7020

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7025 Quantitative Methods in Finance Cr. 3**

Provides students with the fundamental tools to conduct empirical analyses in the area of corporate finance. Topics include data analysis and manipulation, regression analysis, hypothesis testing, linear regression analysis, and interpretation of results. Computer lab sessions that will help students to get the necessary hands-on experience on using financial data. When appropriate, the class will refer to how these techniques are used in research papers and in finance-related industry contexts. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7030 Fixed Income Securities Cr. 3**

The course prepares students for successful careers as fixed-income portfolio managers or fixed income risk managers. Fixed-income securities are debt instruments issued by governments, corporations, or other entities to finance and expand their operations. These securities provide investors with a return in the form of fixed periodic payments and the eventual return of principal at maturity. Examples of fixed-income securities include government bonds, treasury bills, corporate bonds, municipal bonds, step-up bonds, Guaranteed Investment Certificates (GICs), mortgages, and preferred shares. These securities essentially represent a loan from the investor to the issuer. The course aims to introduce students to analytical tools used in interest rate modeling and risk management within the fixed-income market. Additionally, it covers various risks that can be inherent in fixed-income securities, such as credit risk, illiquidity risk, and risks associated with securitization. Offered Intermittently.

**Prerequisite:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7035 Data Analytics in Finance Cr. 3**

The primary objective of this course is to provide the student with the ability to process and analyze financial data using Python. The course material will involve hands on use of real data and focus on data visualization, time series analysis, and statistical applications. The course will cover basic Python syntax, data manipulation with NumPy and Pandas, and IO operations. Python will be the primary computing language used in this course. However, students will be permitted to use R for course projects. Offered Yearly.

**Prerequisite:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7040 Artificial Intelligence and Machine Learning for Finance Cr. 3**

The primary objective of this course is to provide the first or second semester financial engineering or business analytics student with applied quantitative skills in the areas of artificial intelligence and machine learning for finance applications. The course material will involve hands on use of real data and focus on various AI/ML algorithms common in the finance industry. The course will cover supervised learning and unsupervised algorithms and applications including natural language processing. R will be the primary computing language used in this course. However, students will be permitted to use Python for course projects. Offered Yearly.

**Prerequisite:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7090 Money and Capital Markets Cr. 3**

An in depth look into the operations, mechanics, and structure of the financial system. We will discuss topics including: financial institutions, markets, instruments, regulations and monetary policy. As well as developing an understanding of how current monetary policy by the Federal Reserve impacts financial markets. Offered Fall.

**Prerequisites:** BA 6005 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7200 Startup Financing and Profitability Cr. 3**

Students are introduced to basic accounting and financial information that provides the tools necessary to understand the workings and prospects a new venture. The skills learned in this course will provide the student with a basic understanding of the financial language of any business. This course will benefit students who are interested in starting their own firm or working at a startup, or who are interested in careers in venture capital or private equity. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**FIN 7220 Advanced Managerial Finance Cr. 3**

Advanced topics in managerial finance, including leasing, merger valuation, reorganization, interactions of investment and financing decisions, and critical evaluation of alternative firm valuation theories. Offered Fall, Winter.

**Prerequisites:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7229 Corporate Valuation: Techniques, Models and Strategic Applications Cr. 3**

Tools, techniques and models used to address valuation problems in finance; emphasis on corporate strategic valuation. Offered Yearly.

**Prerequisites:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7230 Investment Policies Cr. 3**

The key determinants of security prices under changing economic conditions. Theories, strategies and techniques for selection, timing, and diversification; methods of portfolio construction and administration. Offered Fall, Winter.

**Prerequisites:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7250 Financial Technology Cr. 3**

Financial Technology (Fintech) refers to a financial industry that applies technology to improve financial activities and/or aims to compete with traditional financial methods in the delivery of financial services. This course provides an introduction to the major topics of Fintech, including blockchain, cryptocurrencies, artificial intelligence (AI) and machine learning, peer-to-peer lending, crowdfunding, and initial coin offerings. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7270 Entrepreneurs' Ecosystem Cr. 3**

The course focuses on resources available to the entrepreneur, such as incubators and accelerators as well as on the various forms of financing the entrepreneur can access at different stages of growth. While examining the unique financial issues start-ups face, students are exposed to angel and superangel funding, microloans, crowdfunding, and various types of the venture capital funding avenues. From the entrepreneur's point of view, students gain experience in pitching a business idea and learn the anatomy of a successful business plan. Offered Spring/Summer.

**Prerequisite:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7280 Entrepreneurial Finance and Venture Capital Cr. 3**

Focuses on the venture capital (VC) cycle and understanding and analyzing the unique financial issues which entrepreneurial start-up firms face. Two distinct perspectives are provided: (a) issues that relate to the venture capitalist and (b) issues that relate to the entrepreneur. As a result, the course should be of interest to those pursuing careers in an entrepreneurial setting as well as those who are interested in a career in venture capital firm, management buyouts or private equity firm. Offered Fall, Winter.

**Prerequisites:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7290 Topics in Finance Cr. 3**

Current developments in such areas as: working capital management, mergers and acquisitions, pension fund management, use of options and futures, high-risk debt management, hybrid securities, management of financial institutions, international financial issues, or market microstructure. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**FIN 7340 Futures and Options Cr. 3**

Valuation of options, futures and swaps contracts on equities, fixed instrument securities and foreign exchange; use of these derivatives for risk management. Offered Yearly.

**Prerequisites:** FIN 7230 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7870 International Finance Cr. 3**

Identification of basic factors affecting exchange rates; roles of central banks and international monetary system. Exchange-rate forecasting, balance of payments, international economic linkages. Management of foreign exchange risk (translation, transaction, and economic exposure) by hedging with financial derivative securities and using operational hedges that deal with marketing and production strategies. In-depth analysis of multinational companies' investment in foreign countries; cost-of-capital and capital-budgeting issues. Offered Yearly.

**Prerequisites:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7890 Internship in Finance Cr. 3**

Students work a minimum of 160 hours for fifteen weeks in an entry-level management position in finance. Offered Intermittently.

**Prerequisites:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7900 Mergers and Acquisitions Cr. 3**

An in depth examination of the valuation complexities encountered in corporate restructuring and corporate change of control. The primary topics covered include the Mergers and Acquisitions (M&A) process, valuation using methods of comparables, precedent transactions, and Discounted Cash Flow (DCF) analysis. Financing M&A transactions, particularly using different kinds of debt used in leveraged buyouts will be discussed. Offered Intermittently.

**Prerequisites:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7990 Portfolio Management/Student Managed Investment Fund (SMIF) Cr. 3**

This course provides students with practical experience in portfolio management. Students are responsible for detailed monitoring and recommendations related to the stocks in the Student Managed Investment Fund, a \$2 million long only equity portfolio. Each student is assigned to a market sector and acts as a security analyst, applying appropriate fundamental and valuation analyses, preparing written reports, and making oral presentations to the class and the Fund's advisory board. Offered Fall, Winter.

**Prerequisites:** BA 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**FIN 7995 Directed Study Cr. 1-3**

Advanced independent readings and research under the supervision of a graduate faculty member in areas of special interest to student and faculty member. Offered Every Term.

**Prerequisites:** BA 7000 with a minimum grade of C, BA 7020 with a minimum grade of C, BA 7040 with a minimum grade of C, BA 7050 with a minimum grade of C, and BA 7070 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 5 Credits**

## FPC - Fine Arts: Interdisciplinary

**FPC 1010 Math for the Arts Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
An introduction to quantitative reasoning, with the aim of developing the capacity to comprehend and analyze the quantitative information that is prevalent in daily life, with a particular focus on the arts. Topics include problem solving with shape and form and mathematical modeling of consumer finance. Offered Every Term.

**FPC 1020 Building a Foundation for College Success Cr. 1**

**Satisfies General Education Requirement:** Wayne Experience

This course is designed to expose students to the Wayne State University undergraduate experience. Students will gain an understanding of campus resources, institutional values, and the merits of a liberal arts education from an urban research one university. This course will aid in the development of critical and analytical thinking skills necessary for college success while determining one's academic and professional goals. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Freshman.

**Equivalent:** BE 1060, RSE 1010

**FPC 1100 Computing in the Arts Cr. 2**

Practical experience in web design, digital imaging and digital audio manipulation and discussion of relationship between digital arts and culture. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$10

**FPC 5025 Entrepreneurship in the Arts Cr. 3**

Explores the possibilities of entrepreneurship as a career/life option. Students will identify the intersection of the arts, arts culture, entrepreneurship and the individual to provide a practical and meaningful guide to creating a professional career in the arts. Offered Winter.

**FPC 5660 Creativity Cr. 3**

Theoretical and experiential exploration in creativity and its relation to individuals, organizations, and the entrepreneurial process. Offered Fall.

**FPC 5990 CFPCA Service-Learning Cr. 0**

Corequisite course used to designate the service-learning component of specified CFPCA courses. Maximum of three registrations allowed. Offered Intermittently.

## FPH - Family Public Health

**FPH 7010 Urban Community Assessment and Planning Cr. 1**

Designed to provide students an introduction to the public health landscape of an urban community. Students will be traveling around an assigned community in which they will observe, assess, analyze and prioritize needs and goals, which promote public health. A group community assessment along with a presentation will include data collection, an analysis of data and prioritization of health objectives. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7011 Foundations of Public Health Cr. 3**

Foundations of Public Health is a required course in the MPH program, covering the history, philosophy and values of the public health profession. With a focus on the core functions of public health, the course provides an overview of the science of health promotion and disease prevention, and it will introduce students to the multiple factors associated with population health and explore communication strategies to disseminate public health content to intended populations. Topics include: core functions of public health, 10 essential services of public health, morbidity, mortality, evidence-based practice, social determinants of health, health promotion, disease prevention, communication in public health practice. Offered Fall, Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in MSW/ MPH, Public Health, Public Health Practice or Public Health Honors; enrollment is limited to Graduate level students.

**FPH 7012 Social Justice in Public Health Cr. 3**

This course provides an introduction to the topic of public health and social justice. Students will explore social constructions of health, and examine the complex interplay of community, cultural, ethical, social, economic, environmental, political and social justice forces that shape human health globally and locally. Students will gain an understanding of how social determinants of health impact health and contribute to health disparities and health inequities. Core public health concepts of community, culture, and social justice will be explored through a critical lens, and students will examine the various ways in which these concepts can be applied to public health interventions. The course is designed to provide students with theoretical principles, methods, and skills essential to plan, implement, and evaluate community development activities. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in MSW/ MPH, Public Health, Public Health Practice or Public Health Honors; enrollment is limited to Graduate level students.

**FPH 7015 Biostatistics I Cr. 3**

Descriptive statistics; elementary probability; measures of central tendency and of dispersion; random samples; probability distributions including the binomial, the Poisson, the normal, the t, the chi-square, and the F; introduction to estimation and hypothesis testing; rates and vital statistics. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in MSW/ MPH, Public Health or Public Health Honors; enrollment is limited to Graduate level students.

**FPH 7020 Biostatistics II Cr. 3**

The primary biostatistical tools in public health research are single-outcome, multiple-predictor methods, such as multiple linear regression for continuous outcomes and logistic regression for binary outcomes. This course is to provide introduction to multi-predictor methods, emphasizing their proper use and interpretation. The course incorporates as little theory as feasible, but illustrates the techniques using a variety of examples in the public health field. There are a number of software that can perform these analyses, such as R, SAS, STATA, and SPSS. The R is a flexible environment for data analysis and data visualization. It is open-source and has been compiled for common operating systems such as Windows, Mac (OS X), and Linux. Upon completion of this course, students will be able to perform and interpret regression modeling in epidemiological research. Offered Fall.

**Prerequisites:** FPH 7250 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7100 Health Care Organization and Administration Cr. 3**

General overview of the U.S. health care system; social and organizational aspects of the delivery, financing, utilization, planning, and development of health care systems. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in MSW/ MPH, Public Health or Public Health Honors; enrollment is limited to Graduate level students.

**FPH 7120 Global Public Health Cr. 3**

Addresses global public health issues that impact populations, with the major objective of health equity. Public health principles and techniques are applied using a multidisciplinary approach to prevention and risk reduction strategies. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7210 Research Methods for Public Health Professionals Cr. 3**

Logic of research design, formulation of public health research problems and objectives; development of hypotheses or research questions, specification of variables; sampling; issues in measurement, data collection and analyses. Emphasis will be on qualitative methods in use by public health agencies and non-profit organizations. The focus will be on data collection and analytic skills commonly used in a variety of public health settings including, health care, non-profit organizations, community groups and public health departments. Offered Fall, Spring/Summer.

**Prerequisites:** FPH 7015 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7230 Health Program Evaluation Cr. 3**

Principles and application of program evaluation in health care fields. Design, implementation, and management of evaluations in health environments. Offered Fall.

**Prerequisites:** FPH 7011 with a minimum grade of B, FPH 7012 with a minimum grade of B, and FPH 7210 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7240 Epidemiology Cr. 3**

Epidemiologist's task list; research of problems without known etiology; infectious and non-infectious models; examination of current problems. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in MSW/MPH, Public Health, Public Health Practice or Public Health Honors; enrollment is limited to Graduate level students.

**FPH 7241 Epidemiology of Aging Cr. 3**

This discussion-based graduate seminar is focused on the epidemiology of aging from a public health perspective. The objective is to introduce students to theoretical and empirical population health and aging research with an emphasis given to research utilizing epidemiologic methods and findings. Topics covered include epidemiologic studies of disease, cognition, and functional status in late-life. Attention will also be given to possible mechanisms and disparities underlying these population patterns of health and aging. By exposing students to key trends in aging, students will also become familiar with the major medical and public health challenges associated with the aging of the population. Readings for this course are primarily drawn from U.S. epidemiologic research, but also include readings from other fields and countries examining population health and aging. Offered Winter.

**Prerequisite:** FPH 7240 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7250 Health Data Analytics Cr. 3**

This course introduces students to descriptive and analytic strategies that are used to study the distribution, determinants and control of health-related states and events in populations. First, the historical evolution of key concepts is overviewed. Second, critical reading guidelines are discussed. Third, students are introduced to different applications (i.e., surveillance, program evaluation, clinical, social, environmental and economic) and emerging strategies (e.g., precision public health). Throughout the course, examples relative to social determinants of urban health are emphasized. Offered Spring/Summer.

**Prerequisites:** FPH 7350 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7260 Epidemiologic Methods Cr. 2**

Methodologic concepts underlying the science of epidemiology; conduct and interpretation of epidemiologic studies. Emphasis on elements of observational study design, data analysis, and inference, including issues related to causation, bias, and confounding. Offered Intermittently.

**Prerequisites:** FPH 7015 with a minimum grade of B and FPH 7240 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7270 Applied Research Methods in Urban Public Health Cr. 3**

Focuses on applying quantitative methods to multiple data sets to answer analytic questions, completion of an individualized small project from hypothesis to methods to analysis and discussion that utilizes urban health focused data provided to students. Qualitative methods will be included. Offered Intermittently.

**Prerequisites:** FPH 7015 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7280 Public Health Community Level Intervention Science Cr. 3**

Focuses on intervention science as it pertains to improving public health, with an emphasis on intervening at the community and institutional rather than individual level. The course focuses on systematic, theoretical, and model-driven approaches for developing, implementing, and evaluating evidence-based public health interventions in community settings. Offered Fall.

**Prerequisites:** FPH 7011 with a minimum grade of B, FPH 7012 with a minimum grade of B, and FPH 7210 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7300 Public Health Policy Cr. 3**

Concepts, issues, and problems in population health policy; substantive information regarding policy formulation and content. Offered Fall, Winter.

**Prerequisites:** FPH 7011 with a minimum grade of B and FPH 7012 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7320 The Social Basis of Health Cr. 3**

Social, cultural, and psychological aspects of health and health-related behavior. Topics include: health prevention and promotion, relationship between stress and illness, health services utilization, patient-practitioner interactions, and coping with chronic illness. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7340 Generalized Linear Models and Categorical Data Cr. 4**

Statistical analysis of categorical and non-normal data, with an emphasis on the cohesive approach of generalized linear models. Specific types of models to be examined include logistic regression, probit regression, and log-linear models. Offered Intermittently.

**Prerequisites:** FPH 7150 with a minimum grade of B and FPH 7160 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7350 Advanced Statistical Programming Cr. 2**

Statistical programming using R and SAS in public health. SAS topics include error checking, reading datasets, coding and formatting variables, writing reports, tables, and graphs. R topics include data visualization and analysis, numeric optimization and bootstrapping. Offered Winter.

**Prerequisites:** FPH 7015 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7390 Biostatistical Methods in Epidemiology Cr. 4**

Application and interpretation of biostatistical methods used in epidemiologic studies. Topics include: approaches to missing data, sensitivity analysis, bootstrap methods, statistical power, sample size estimation, and analysis of ordinal exposures and outcomes. Offered Intermittently.

**Prerequisites:** FPH 7020 with a minimum grade of B and FPH 7260 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7420 Principles of Environmental Health Cr. 3**

Current environmental health issues that affect individuals at work and in their communities. Sources of chemical, physical, and biological agents; their associated health effects. Air pollution, exposure prevention, water and solid waste management, and occupational health and safety. Impact of environmental exposures on human health; case studies. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.



**FPH 7430 Application of Public Health Principles Cr. 3**

Provides exposure and skill development in a broad and diverse range of public health projects and associated methods while working to develop an applied learning project proposal including grant development and budgeting. Offered Winter.

**Prerequisites:** FPH 7011 with a minimum grade of B, FPH 7012 with a minimum grade of B, and FPH 7210 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7440 Applied Practice Experience Cr. 3**

Individual field experience in public health setting. Integration and synthesis of content and experiences of the public health courses; direct hands-on experience, with appropriate reporting mechanism. Offered Every Term.

**Prerequisites:** FPH 7210 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7460 Linear Mixed Models Cr. 3**

Statistical modeling to incorporate random effects. Topics will include clustered-data analysis, longitudinal data analysis, hierarchical linear models, correlated data, and covariance structure. Offered Intermittently.

**Prerequisites:** FPH 7150 with a minimum grade of B or FPH 7160 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7480 Design of Experiments and Clinical Trials Cr. 3**

Introduction to five different types of experimental designs and design and analytic issues that arise in each of the study designs. Extension of the designs to clinical trials and microarray experiments are discussed. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7500 Survival Analysis Cr. 3**

Statistical methods for analyzing survival data, including parametric and nonparametric approaches. Topics include Kaplan-Meier estimation, log rank test, and proportional hazards regression analysis. Offered Intermittently.

**Prerequisites:** FPH 7150 with a minimum grade of B or FPH 7160 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7510 Leadership and Population Health Cr. 2**

An overview of the critical principles of public health leadership. The course will emphasize management and leadership skills applied to teams, public health projects and programs. Organizational and leadership principles which are applied to health care settings will also be reviewed. The focus will be on the theoretical and practical application of leading process and performance improvement in a variety of health and public health organizations in the Metropolitan Detroit area. Offered Spring/Summer.

**Prerequisites:** FPH 7011 with a minimum grade of B and FPH 7012 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7511 Health Promotion Messaging and Advocacy Cr. 3**

Health Promotion Messaging and Advocacy is a required course in the Master of Public Health Program's Community Based Public Health Practice (CBPHP) concentration. This course covers the principles and practices of health promotion messaging and the role of health advocacy in tackling health inequalities. Through the lens of the social determinants of health, students will design a community focused health promotion messaging intervention to enhance awareness for community-health outcome improvements. Topics include: behavior change theories for health messaging, message framing, health literacy, health promotion campaigns, crisis and outbreak messaging, technology-based messaging, clinical-patient messaging, and health advocacy. Offered Spring/Summer.

**Prerequisites:** FPH 7011 with a minimum grade of B and FPH 7012 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7520 Public Health Preparedness Cr. 2**

The course provides an introduction and overview of the discipline of public health emergency preparedness, response, and recovery. It aims to provide a wide-ranging introduction to the field's core competencies. Public health preparedness examines the role and function of public health professionals in emergencies. The course will employ an all-hazards, domestic perspective, and explore different types of natural, biological, chemical, radiological, nuclear, and other human-caused disasters and a whole community approach. Students will learn to apply these concepts to real-world disasters, and identify, evaluate, and apply information related to public health disaster response. The course is designed to a capacity for public health to be active participants in responses to emergencies. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**FPH 7760 Community Health Education Cr. 3**

Analysis of community health problems and change strategies for health promotion; application of principles and techniques of community health education to multiple ethnic groups and diverse health problems. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7780 Emergent Topics in Public Health Cr. 3**

Selected public health topics or emerging fields in public health practice, including environmental health, social behavioral health, epidemiology, biostatistics, and healthcare leadership and management. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7860 Principles of Occupational Health Cr. 3**

Current occupational health issues; interplay between work environment and worker health. Through case studies, students employ integrative approaches to ensure worker safety and to optimize worker health, well-being and performance. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 7990 Directed Studies in Community Health Services Cr. 1-6**

Studies dealing with the public health practice and research to supplement regular course offerings. An approved directed study proposal is required prior to registration. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 8991 Integrated Learning Experience Cr. 3**

This is a seminar in which faculty and students interact in a variety of in-class writing activities to support development of individually prepared scholarly products. This course fulfills the Master's Project requirements for completion of the MPH degree. Offered Every Term.

**Prerequisites:** FPH 7440 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**FPH 8999 Master's Thesis Research and Direction Cr. 2-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## FRE - French

**FRE 1010 Beginning French I Cr. 4**

Introduction to the French language and Francophone cultures through interactive and communicative reading, writing, listening, and speaking activities to develop language and cultural proficiency. No experience with French is needed. Offered Every Term.

**Fees:** \$5

**FRE 1020 Beginning French II Cr. 4**

Continuing development of French language and Francophone cultural proficiency through interactive and communicative reading, writing, listening and speaking activities. Offered Every Term.

**Prerequisites:** FRE 1010 with a minimum grade of D-

**Fees:** \$5

**FRE 2010 Intermediate French Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Continuing development of French language and Francophone cultural proficiency through interactive and communicative reading, writing, listening and speaking activities. Completion of this course fulfills the General education requirement for foreign language and culture. Offered Every Term.

**Prerequisites:** FRE 1020 with a minimum grade of D-

**Fees:** \$5

**FRE 2100 French through Film I Cr. 4**

Increased mastery in French and Francophone linguistic and cultural proficiency through film and interactive and communicative reading, writing, listening and speaking activities. Offered Fall.

**Prerequisites:** FRE 2010 with a minimum grade of D-

**Fees:** \$30

**FRE 2110 French through Film II Cr. 4**

Increased mastery in French and Francophone linguistic and cultural proficiency through film and interactive and communicative reading, writing, listening and speaking activities. Offered Winter.

**Prerequisites:** FRE 2010 with a minimum grade of D-

**Fees:** \$30

**FRE 2700 Anguish and Commitment: European Existentialist Literature Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Hesse, Kafka, Pirandello, Sartre, Camus and Unamuno. Offered Every Other Year.

**Equivalent:** GER 2700, ITA 2700, SPA 2700

**FRE 2710 Introduction to French Civilization I Cr. 3**

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry

An overview of France's great contributions to world culture, from the time of the Gauls to the French Revolution. French history, thought, art, architecture, society, geography, and institutions; illustrated with slides and films; includes visits to Detroit Institute of Arts. Offered Every Term.

**FRE 2720 Introduction to French Civilization II Cr. 3**

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry

From the French Revolution to contemporary times. French way of life, its moral and intellectual foundations, its culture and institutions; their transformation under the stress of the twentieth century. Offered Every Other Year.

**FRE 2991 Understanding the Fairy Tale Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Follows the development of classical fairy tales with a focus on France and Germany, moving from important writers like Marie-Catherine d'Aulnoy and Charles Perrault in France to the Brothers Grimm and Caroline Stahl in Germany, to Walt Disney films and contemporary fairy-tale retellings on YouTube and other media. Approaches introduced in the course include feminist, gender, queer, race, and sociohistorical. Taught in English. Offered Yearly.

**Equivalent:** GER 2991

**FRE 3200 French Cafe Cr. 3**

Students hone their speaking skills through discussions and debates about French and Francophone culture (film, television, graphic novels, podcasts) and current events. Offered Winter.

**Prerequisites:** FRE 2100 with a minimum grade of D- or FRE 2110 with a minimum grade of D-

**Fees:** \$30

**FRE 3300 Professional French through Literary and Filmic Texts Cr. 3**

An initiation into the reading of various genres from the perspective of business and other professional contexts. Study of methods and vocabulary to enable students to discuss and analyze essays, poems, short novels, films and television series, and plays set in and dealing with questions relevant to professional language contexts. Offered Winter.

**Prerequisites:** FRE 2100 with a minimum grade of D- or FRE 2110 with a minimum grade of D-

**FRE 4620 Topics in Sociocultural Analysis Cr. 3**

Initiation into reading a range of different media, verbal and visual, in French and francophone cultural texts, from poetry to prose (fictional and non-fictional), to painting, photography, architecture, and other media. Offered Winter.

**Repeatable for 6 Credits**

**FRE 5000 Minor Language Practicum Cr. 3**

Controlled application of active language skills for students electing a Ph.D. minor in French. No degree credit toward Ph.D. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**FRE 5100 Advanced French Composition and Conversation through Cultural Analysis Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency Focus on advanced writing and speaking skills through the analysis of different types of contemporary French and Francophone cultural texts, including literature, film and television, newspaper articles, social media, etc. Students will enhance their written and oral competency in French and develop cross-cultural skills to better appreciate the Francophone world. Offered Winter.

**FRE 5410 Topics in French and Francophone Culture Cr. 3**

Students will explore French and Francophone culture from the perspective of political, cultural, and/or social history. Topics could include war, women, popular culture, childhood, colonialism and postcolonialism; the course may focus on a single period or provide a diachronic overview. Topics to be announced in the Schedule of Classes. Offered Every Other Fall.

**Prerequisites:** 2 of (FRE 3300, FRE 4620, FRE 5100, or FRE 5600)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**FRE 5415 Topics in French and Francophone Literature Cr. 3**

Students will explore French and Francophone literature from the perspective of political history, aesthetic history, cultural history, and/or social history. Topics might include: the diachronic study of a genre like theater or the fairy tale; themes such as gender, travel, the Other; a geographical focus such as North African or Quebecois and Franco-Canadian literature. Topics to be announced in the Schedule of Classes. Offered Every Other Fall.

**Prerequisites:** 2 of (FRE 3300, FRE 4620, FRE 5100, or FRE 5600)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**FRE 5600 Translation Studies Cr. 3**

Introduces students to the study of translation, both as theory and practice, through the discussion of key texts in translation theory, and weekly practice focused on the acquisition of different translation techniques and improving students' idiomatic French. Students will polish their language skills while exercising their creative faculties through translations of various texts from different genres: newspaper articles, graphic novels, poems, diaries, song lyrics, print ads, etc. Offered Fall.

**Prerequisites:** 2 of (FRE 3300, FRE 4620, or FRE 5100)

**FRE 5990 Directed Study Cr. 1-4**

Offered Every Term.

**Repeatable for 8 Credits**

**FRE 5999 Internship in French Studies Cr. 3**

Internship in a public or private organization related to French Studies. Offered for undergraduate credit only. Offered Every Term.

**Prerequisite:** FRE 3200 with a minimum grade of C- or FRE 3300 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in French or French Honors.

**FRE 6200 Renaissance to Revolution Cr. 3**

Offers a panoramic view of the literary and cultural landscape from the French Renaissance to the Revolution through the study of influential texts of prose, poetry, and theater. The texts studied will range from the early sixteenth century and the period of the Sun King to the philosophes. Offered Every Other Fall.

**Prerequisites:** 2 of (FRE 3300, FRE 4620, FRE 5100, or FRE 5600)

**FRE 6300 Modernity, Postmodernity, and Extreme Contemporain Cr. 3**

Offers a panoramic view of the modern, postmodern, and contemporary periods through the study of influential texts of prose, poetry, and theater. The texts studied will range from the early nineteenth century and la Belle Epoque to the two World Wars and the contemporary period. Offered Every Other Fall.

**Prerequisites:** 2 of (FRE 3300, FRE 4620, FRE 5100, or FRE 5600)

**FRE 6620 Topics in Sociocultural Analysis Cr. 3**

Initiation into reading a range of different media, verbal and visual, in French and francophone cultural texts, from poetry to prose (fictional and non-fictional), to painting, photography, architecture, and other media. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**FRE 7010 Introduction to Literary Theory Cr. 3**

Graduate-level introduction to key critical perspectives, theories, problems, and questions that have informed the discussions and analyses of twentieth- and twenty-first-century literary and cultural scholars. Specific theoretical paradigms used to determine the task of textual interpretation, locate the limits of each approach, trace the emergence of subsequent theoretical paradigms, and think about how such theories might or might not be relevant in the study of specific texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** GER 7010, ITA 7010, SPA 7010

**FRE 7100 Introduction to Translation Studies Cr. 3**

Introduction to Translation Studies presents the essential theories as tools to deal with the significant practical problems and issues that may confront the practitioner in specialized translation. The class will focus on the following points: 1) acquisition of the basics of translation theory in order to facilitate the comprehension of translation's multidisciplinary processes and be aware of the variety of theoretical approaches, 2) the study and evaluation of primary methods of research to enhance future research and practices, 3) the acquisition of necessary metalanguage, which allows the textual analysis of the translation process, the solution driven mind of a translator, the approach to tackle recurring translation problems, and the evaluation of translated texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ARB 7100, CLA 7100, GER 7110, ITA 7100

**FRE 7770 Special Studies in French Literature Cr. 3-4**

Works of an outstanding writer, a literary genre, or of literary trends. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**FRE 7996 Research Project Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**FRE 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**FRE 8410 Topics in French and Francophone Culture Cr. 3**

In this course, students will explore French and Francophone culture from the perspective of political, cultural, and/or social history. Topics could include war, women, popular culture, childhood, colonialism and postcolonialism; the course may focus on a single period or provide a diachronic overview. Topics to be announced in the Schedule of Classes. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**FRE 8415 Topics in French and Francophone Literature Cr. 3**

In this course students will explore French and Francophone literature from the perspective of political history, aesthetic history, cultural history, and/or social history. Topics might include: the diachronic study of a genre like theater or the fairy tale; themes such as gender, travel, the Other; a geographical focus such as North African or Quebecois and Franco-Canadian literature. Topics to be announced in the Schedule of Classes. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

### **FRE 8600 Seminar in Early Modern Studies Cr. 3**

Advanced special topics on early modern literature and culture. Topics to be announced in the Schedule of Classes. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

### **FRE 8610 Seminar in Modernity, Postmodernity, and Extreme Contemporain Cr. 3**

Advanced special topics on modern, postmodern, and contemporary French and Francophone literatures and cultures. Topics to be announced in the Schedule of Classes. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

### **FRE 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

### **FRE 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

### **FRE 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **FRE 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** FRE 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

### **FRE 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** FRE 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

### **FRE 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** FRE 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

### **FRE 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## **FYS - First Year Seminar**

### **FYS 1010 Learning with the Brain in Mind Cr. 1**

**Satisfies General Education Requirement:** Wayne Experience

This is an interactive, collaborative course designed to provide students with the tools needed to simplify for success. The curriculum is holistic in nature as it addresses not only evidence-based learning strategies, but also academic performance enhancing topics such as time-management, stress-management, diversity, wellness, and successfully transitioning from high school to Wayne State University. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Freshman.

### **FYS 1020 Preparing for Academic Success and Career Exploration Cr. 2**

Through a process of introspection and interactive experiences, this course will improve your writing; enhance your decision making and critical thinking skills and expose you to university resources and to multiple career paths in throughout the university. Offered Fall, Winter.

## **GER - German**

### **GER 1010 Elementary German I Cr. 4**

Development of ability to speak and read German. Offered Every Term.

**Fees:** \$5

### **GER 1020 Elementary German II Cr. 4**

Continuation of GER 1010. Offered Every Term.

**Prerequisites:** GER 1010 with a minimum grade of C

**Fees:** \$5

### **GER 2010 Intermediate German Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Continuation of GER 1020. Reading of graded German literature and grammar review. Offered Every Term.

**Prerequisites:** GER 1020 with a minimum grade of C

**Fees:** \$5

### **GER 2020 Everyday Encounters in Language and Culture Cr. 4**

Solidifies students' ability to express themselves in German with increased clarity and grammatical accuracy when writing and speaking about topics of personal experience (studies, work, family, daily life, leisure time), current events, and issues of general interest. Offered Every Term.

**Prerequisites:** GER 2010 with a minimum grade of C (may be taken concurrently)

**Fees:** \$5

### **GER 2310 Short Fiction from Central Europe and Russia Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Explores how writers use short fictional forms, such as parable, short story, fairy tale, and satire, to express important themes in the Central European experience, including violence and cruelty, freedom and imprisonment, utopian visions, and urban life. Offered Fall.

**Equivalent:** SLA 2310

### **GER 2700 Anguish and Commitment: European Existentialist Literature Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Hesse, Kafka, Pirandello, Sartre, Camus and Unamuno. Offered Every Other Year.

**Equivalent:** FRE 2700, ITA 2700, SPA 2700

### **GER 2710 Resistance, Rebellion, Revolution: Transitional Moments in German Culture and History Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry

Transitional moments in German culture and history from the Middle Ages to the present are examined through literary and non-literary texts and cultural artifacts. Taught in English. Offered Every Term.



**GER 2991 Understanding the Fairy Tale Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Follows the development of classical fairy tales with a focus on France and Germany, moving from important writers like Marie-Catherine d'Aulnoy and Charles Perrault in France to the Brothers Grimm and Caroline Stahl in Germany, to Walt Disney films and contemporary fairy-tale retellings on YouTube and other media. Approaches introduced in the course include feminist, gender, queer, race, and sociohistorical. Taught in English. Offered Yearly.

**Equivalent:** FRE 2991

**GER 3100 Engaging Historical Moments Cr. 3**

Further developing intermediate skills in language and cultural competency, the course explores core moments in German history through a wide range of primary sources, such as print and online journalism, new media, television, as well as popular and canonical literature and film. It may explore a particular moment in detail or examine several core moments in thematic units. Offered Yearly.

**Prerequisites:** GER 2020 with a minimum grade of C

**GER 3200 Exploring Modern Identities Cr. 3**

Focuses on contemporary texts from various German language media that reflect the diversity of perspectives and identities in Germany-speaking countries. Consolidates intermediate proficiency skills, particularly in writing and speaking, by exploring language as it is embedded in German culture. Offered Yearly.

**Prerequisites:** GER 2020 with a minimum grade of C

**GER 3410 New Soil, Old Roots: The Immigrant Experience Cr. 3**

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry Armenian, German, Jewish, Polish, Russian and Ukrainian immigration to the United States, its effects on the cultures (language, literature, religion, politics, music, art and theatre) of these ethnic groups and its influence upon American life. Offered Fall.

**Equivalent:** ARM 3410, POL 3410, RUS 3410, SLA 3410

**GER 4600 Products, Perspectives, and Practices of Culture Cr. 3**

Introductory seminar in German Studies, designed to build skills in critical reading, research and writing. Focus is on a selected literary or cultural topic. Offered Intermittently.

**Prerequisites:** GER 3100 with a minimum grade of C and GER 3200 with a minimum grade of C

**GER 5000 German Practicum Cr. 3**

Controlled application of active language skills for students electing a Ph.D. minor in German, or German as a graduate reading language. No Ph.D. degree credit. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**GER 5100 Advanced Communication in Oral and Written Discourse Cr. 3**

This course expands and refines students' interpersonal, interpretive, and presentational communication skills in both oral and written German discourse in academic and professional contexts. Offered Every Other Year.

**Prerequisites:** GER 3100 with a minimum grade of C and GER 3200 with a minimum grade of C

**GER 5210 German Translation Studies Cr. 3**

Introduces students to the study of translation, both as theory and practice, through the discussion of key texts in translation theory, and weekly practice focused on the acquisition of different translation techniques and improving students' understanding of the subtleties of the German language. Students will polish their language skills while exercising their creative faculties through translations of various texts from different genres and media. Offered Every Other Year.

**Prerequisites:** GER 3100 with a minimum grade of C and GER 3200 with a minimum grade of C

**GER 5390 Holocaust Studies Cr. 3**

Interdisciplinary approach to studying the Holocaust that includes history, literature, film, aesthetics, presentation and reception, and other areas that encourage a broad and deep understanding of Holocaust Studies. Offered Intermittently.

**GER 5400 Cultural Studies and Criticism Cr. 3**

Exploration of key concepts and major figures for scholarship in literary and cultural studies. Readings and class in English. Open to students from diverse disciplines. Offered for undergraduate credit only. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**GER 5600 Research in German Studies Cr. 3**

Introductory seminar for graduate students in German studies that will prepare them to write graduate research papers. Focus on a particular topic of current relevance in German studies to help participants develop skills as critical readers, researchers, and writers of scholarship-based textual analysis. Offered Fall.

**Prerequisites:** GER 4600 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Graduate level students.

**GER 5770 Modernism Cr. 3**

Fin-de-siecle Germany and Austria, modernism and the metropolis, modernism and the new media (film, radio), art and politics of the Weimar Republic. Offered Intermittently.

**Repeatable for 6 Credits**

**GER 5780 Texts and Contexts Since 1945 Cr. 3**

Recent and contemporary literary and cultural works in context of the political, social and intellectual developments since 1945. Offered Intermittently.

**Repeatable for 6 Credits**

**GER 5790 Topics in German Studies Cr. 3**

Special topics in German studies, focusing on culture, literature, language, or area studies. Topics to be announced in Schedule of classes. Offered Intermittently.

**Repeatable for 9 Credits**

**GER 5800 Literature and Cultures of Minorities Cr. 3**

Focuses on literature by and about marginalized groups and on their cultures in postwar Germany. Offered Intermittently.

**GER 5990 Directed Study Cr. 1-3**

Offered Every Term.

**Repeatable for 6 Credits**

**GER 5993 Writing Intensive Course in German Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a course designated as a corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Fall, Winter.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and (GER 4600 (may be taken concurrently) or GER 5000-5999 (may be taken concurrently))

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**GER 5999 Internship in German Studies Cr. 3**

Internship in a public or private organization related to German studies. Offered for undergraduate credit only. Offered Every Term.

**Prerequisite:** GER 3100 with a minimum grade of C- or GER 3200 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in German or German Honors.

**GER 7010 Introduction to Literary Theory Cr. 3**

Graduate-level introduction to key critical perspectives, theories, problems, and questions that have informed the discussions and analyses of twentieth- and twenty-first-century literary and cultural scholars. Specific theoretical paradigms used to determine the task of textual interpretation, locate the limits of each approach, trace the emergence of subsequent theoretical paradigms, and think about how such theories might or might not be relevant in the study of specific texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** FRE 7010, ITA 7010, SPA 7010

**GER 7110 Introduction to Translation Studies Cr. 3**

Introduction to Translation Studies presents the essential theories as tools to deal with the significant practical problems and issues that may confront the practitioner in specialized translation. The class will focus on the following points: 1) acquisition of the basics of translation theory in order to facilitate the comprehension of translation's multidisciplinary processes and be aware of the variety of theoretical approaches, 2) the study and evaluation of primary methods of research to enhance future research and practices, 3) the acquisition of necessary metalanguage, which allows the textual analysis of the translation process, the solution driven mind of a translator, the approach to tackle recurring translation problems, and the evaluation of translated texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ARB 7100, CLA 7100, FRE 7100, ITA 7100

**GER 7390 Holocaust Studies Cr. 3**

Interdisciplinary approach to studying the Holocaust that includes history, literature, film, aesthetics, presentation and reception, and other areas that encourage a broad and deep understanding of Holocaust Studies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GER 7400 Cultural Studies and Criticism Cr. 3**

Exploration of key concepts and major figures for scholarship in literary and cultural studies. Readings and class in English. Open to students from diverse disciplines. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GER 7770 Modernism Cr. 3**

Fin-de-siecle Germany and Austria, modernism and the metropolis, modernism and new media (film, radio), art and politics of the Weimar Republic. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**GER 7780 Texts and Contexts Since 1945 Cr. 3**

Recent and contemporary literary and cultural works in context of the political, social and intellectual developments since 1945. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**GER 7790 Topics in German Studies Cr. 3**

Special topics in German studies, focusing on culture, literature, language, or area studies. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**GER 7800 Literatures and Cultures of Minorities Cr. 3**

Focuses on literature by and about marginalized groups and on their cultures in postwar Germany. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GER 7996 Research Project Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**GER 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**GER 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**GER 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**GER 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GER 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** GER 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**GER 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** GER 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**GER 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** GER 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

## **GER 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

# **GKA - Greek: Ancient**

## **GKA 1010 Elementary Ancient Greek I Cr. 4**

Basic vocabulary, forms, grammar, and introduction to ancient Greek culture. Offered Intermittently.

**Fees:** \$5

## **GKA 1020 Elementary Ancient Greek II Cr. 4**

Continuation of GRK 1010 with increasing emphasis on reading ability. Offered Intermittently.

**Prerequisites:** GKA 1010 with a minimum grade of D-

**Fees:** \$5

## **GKA 2010 Intermediate Ancient Greek I Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Review of Greek grammar, and readings from selected Greek prose authors such as Plato and Lysias. Offered Intermittently.

**Prerequisites:** GKA 1020 with a minimum grade of D-

**Fees:** \$5

## **GKA 2020 Intermediate Ancient Greek II Cr. 4**

Introduction to genre; poetic language, meters, sociological and historical context; reading of selected passages from the Iliad or the Odyssey; study of the fundamentals of Homeric Greek. Offered Intermittently.

**Prerequisites:** GKA 2010 with a minimum grade of D-

## **GKA 3300 Greek Tragedy Cr. 4**

One tragedy of Euripides, Sophocles, or Aeschylus, supplemented by selections from the dramas of the other two playwrights. Offered Intermittently.

**Prerequisites:** GKA 2020 with a minimum grade of D-

## **GKA 5000 Ancient Greek for Graduate Students Cr. 1-4**

Basic grammar and vocabulary of Greek; leads to reading of continuous passages of poetry and prose in Greek. No credit applicable to M.A. in classics degree. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

## **GKA 5200 Ancient Greek Lyric Poetry Cr. 4**

Personal lyric poetry as a reflection of individual and society in the culture of the post-Homeric Greek world. Offered Intermittently.

**Prerequisites:** GKA 2020 with a minimum grade of D-

## **GKA 5350 Readings in Ancient Greek History and Culture Cr. 1-3**

Readings in Greek primary sources relevant to the associated CLA course (which is taught in English). Offered Every Term.

**Prerequisites:** (GKA 3000-3999 with a minimum grade of D- or GKM 3000-3999 with a minimum grade of D-) and CLA 5000-5999 with a minimum grade of D- (may be taken concurrently)

**Repeatable for 6 Credits**

## **GKA 5400 Ancient Greek Philosophy Cr. 4**

The origin and development of Greek philosophy as seen through representative selections from prominent philosophers such as the Presocratics, Plato, Aristotle, Epicurus, and the Stoics. Offered Intermittently.

**Prerequisites:** GKA 2020 with a minimum grade of D-

## **GKA 5500 Ancient Greek Historians Cr. 4**

Prose style and historiographic techniques of ancient historians; selections from Herodotus, Thucydides, Xenophon, and Polybius. Offered Intermittently.

**Prerequisites:** GKA 2020 with a minimum grade of D-

## **GKA 5600 Ancient Greek Epic Poetry Cr. 4**

Study in ancient Greek of Homer, Hesiod, Apollonius Rhodius and others. Theory of oral vs. literary composition, the Homeric question, metrics. Offered Intermittently.

**Prerequisites:** GKA 2020 with a minimum grade of D-

## **GKA 5840 Ancient Greek: Attic Orators Cr. 4**

Evolution of Greek prose style and historical context of the development of rhetoric in selected works of Attic orators. Offered Intermittently.

**Prerequisites:** GKA 2020 with a minimum grade of D-

## **GKA 5990 Directed Study Cr. 1-4**

Offered Every Term.

**Repeatable for 8 Credits**

## **GKA 6250 Ancient Greek Drama Cr. 4-8**

Selected readings from the plays of Aeschylus, Sophocles, or Euripides or from the plays of Aristophanes or Menander. History and theory of the development of Greek drama and its subsequent influence on world literature. Offered Intermittently.

**Prerequisites:** GKA 2020 with a minimum grade of D-

**Repeatable for 8 Credits**

## **GKA 7810 Studies in Ancient Greek Poetry Cr. 4**

A major poet or genre. Topics to be announced in Schedule of Classes . Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

## **GKA 7820 Studies in Ancient Greek Prose Cr. 4**

Study of a major prose author or genre. Topics to be announced in Schedule of Classes . Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

## **GKA 7999 Ancient Greek: Master's Essay Direction Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

## **GKA 8999 Ancient Greek: Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

# **GKM - Greek: Modern**

## **GKM 1010 Elementary Modern Greek I Cr. 4**

Training in pronunciation, conversation and reading; introduction to the culture of Greece today. Offered Every Other Fall.

**Fees:** \$5

## **GKM 1020 Elementary Modern Greek II Cr. 4**

Continuation of GKM 1010. Offered Every Other Winter.

**Prerequisites:** GKM 1010 with a minimum grade of D-

**Fees:** \$5

## **GKM 2010 Intermediate Modern Greek I Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Review of grammar, practice in oral and written modern Greek, based on readings in modern Greek literature. Offered Every Other Fall.

**Prerequisites:** GKM 1020 with a minimum grade of D-

**Fees:** \$5

**GKM 2020 Intermediate Modern Greek II Cr. 4**

Special attention to vocabulary enrichment and writing compositions. Class conversation based on reading of cultural materials and short stories. Translation exercises from English to Greek; study of appropriate grammar rules. Offered Every Other Winter.

**Prerequisites:** GKM 2010 with a minimum grade of D-

**Fees:** \$5

**GKM 3530 The World of Early Christianity Cr. 3**

A historical survey of the cultural, social, and literary world of early Christianity. Offered Every Other Year.

**Equivalent:** CLA 3530

**GKM 3590 Byzantine Civilization Cr. 3**

**Satisfies General Education Requirement:** Historical Studies, Social Inquiry

Survey of Byzantine culture, religion, society, and literature from late Antiquity to 1453, through secondary and primary sources in translation. Offered Yearly.

**Equivalent:** CLA 3590

**GKM 3710 Modern Greek Literature and Culture in English Cr. 3-4**

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry

Survey of the culture and civilization of modern Greece through a study of modern Greek history, religion, and literary traditions. Offered Every Term.

**GKM 3720 Greek Identity from Antiquity to Modernity Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Historical Studies

Explores what it meant to be Greek from Archaic Greece to the modern era. Offered Yearly.

**Equivalent:** CLA 3720

**GKM 3930 Topics in Byzantine and Modern Greek Studies Cr. 3**

In-depth study of aspects of Byzantine and Modern Greek history, society, literature, and culture. Topics to be announced in Schedule of Classes. All readings in English. Offered Intermittently.

**Repeatable for 9 Credits**

**GKM 3990 Directed Study Cr. 1-4**

For students desiring additional work in the language at the intermediate level; for programs of work not included in scheduled courses, either in language or literature. Offered Every Term.

**Prerequisites:** GKM 2020 with a minimum grade of D-

**Repeatable for 8 Credits**

**GKM 5000 Modern Greek for Graduate Students Cr. 1-4**

Basic grammar and vocabulary of modern Greek. Emphasis on conversation, reading and writing. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**GKM 5530 The World of Early Christianity Cr. 3**

A historical survey of the cultural, social, and literary world of early Christianity. Offered Every Other Year.

**Equivalent:** CLA 5530

**GKM 5590 Byzantine Civilization Cr. 3**

Survey of Byzantine culture, religion, society, and literature from late Antiquity to 1453, through secondary and primary sources in translation. Offered Yearly.

**Equivalent:** CLA 5590

**GKM 5720 Greek Identity from Antiquity to Modernity Cr. 3**

**Satisfies General Education Requirement:** Historical Studies

Explores what it meant to be Greek from Archaic Greece to the modern era. Offered Yearly.

**Equivalent:** CLA 5720

**GKM 5930 Topics in Byzantine and Modern Greek Studies Cr. 3**

In-depth study of aspects of Byzantine and Modern Greek history, society, literature, and culture. Topics to be announced in Schedule of Classes. All readings in English. Offered Intermittently.

**Repeatable for 9 Credits**

**GKM 5990 Directed Study Cr. 1-4**

Offered Every Term.

**Repeatable for 8 Credits**

## GLS - Global Studies

**GLS 2000 Around the World in Seven Weeks: Introduction to Global Languages and Cultures Cr. 2**

Get to know multiple linguistic areas of the world, learn basic phrases in five different languages, explore different ways to write (e.g. with Chinese or Japanese signs, Arabic writing, the Cyrillic or Greek alphabet), and discuss current events from the perspective of various cultures (such as social justice, sustainability, minorities, art and media, conflict, human rights). Sessions will be led by different instructors who teach an area of their research. Offered Intermittently.

**GLS 2700 Introduction to Global Stories Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Philosophy Letters

Provides students with an introductory understanding of constructions and representations of global issues and globalization in literature, film, media and the visual arts and of the ways in which human stories contribute to complex matrices of representation. Offered Fall, Winter.

**GLS 2800 Introduction to Global Issues and Institutions Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences

Provides a broad overview of some of the big and controversial questions facing our increasingly globalized world today and introduces some of the tools we have to confront these issues. Topics include the conflict and security threats, protection of human rights, global warming, and resource management. Offered Fall, Winter.

**Equivalent:** HIS 2800

**GLS 2820 Topics in Emerging Global Issues Cr. 2-3**

Special topics in emerging global issues related to international relations, global governance institutions, international law, human rights, global environment, global resource management, and other fields. Topics to be announced in the class schedule. Offered Every Term.

**Repeatable for 6 Credits**

**GLS 2900 Intercultural Competence for a Global World Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Global Learning Inquiry

The objectives of this course are to explore cultures via characteristics of intra-cultural communication (varieties of language marked by history and region, gender, and migration); to acknowledge regional and ethnic variations of cultural value systems as expressed in everyday interactions as well as cultural products; to learn to reflect on one's own cultural "branding" or vantage point as determined by ethnicity, region, and language(s) as well as within the context of lifelong learning at home and abroad. Offered Fall.



**GLS 3111 Digital Storytelling and Ethnic Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Students will learn about the ethnic, racial, and cultural history of Detroit and how to document elements of that history. This course introduces students to both theoretical and practical concepts around digital storytelling, drawing on extensive theoretical scholarship about placemaking, experiencing place, and the social production of heritage that spans the disciplines of anthropology, historical archaeology, heritage studies, historic preservation, media studies, and mobilities. Students will learn the practical steps involved in creating digital stories and will be introduced to best practices in multimedia development as discussed in the literature in the field of instructional technology. They will also explore the cultural, ethical and technological considerations involved in creating and disseminating digital stories. They will then create their own short digital story, which they will be able to share with the website Ethnic Layers of Detroit. Offered Yearly.  
**Equivalent:** ANT 3111, POL 3111, RUS 3111

**GLS 3410 Global Health Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences  
Introduces students to problems of disease and disorder worldwide and looks at various efforts to define and address these problems through a social science perspective. Offered Every Term.  
**Equivalent:** ANT 3410, PH 3410

**GLS 3700 Globalization: Theories, Practices, Implications Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences  
Students develop analytical tools for appraising processes of globalization; acquire a familiarity with the current topical concerns of global studies; and examine economic, political, and cultural approaches to globalization. Offered Winter.  
**Equivalent:** ANT 3700

**GLS 3810 Topics in Global Studies Cr. 1**

Special topics in global history, politics, culture, science, health, law, philosophy, language, and other fields and issues. Topics to be announced in the class schedule. Offered Every Term.  
**Repeatable for 6 Credits**

**GLS 3830 Topics in Global Studies Cr. 3**

Special topics in global history, politics, culture, science, health, law, philosophy, language, and other fields and issues. Topics to be announced in the class schedule. Offered Every Term.  
**Repeatable for 6 Credits**

**GLS 4200 Orientalism and Occidentalism, Past and Present Cr. 3**

This course, team-taught by one scholar of the contemporary (traditionally defined) East and one scholar of the (traditionally defined) ancient West, will explore many facets of the west's creation of the eastern other, beginning in the time of the ancient Greeks through the current age in Detroit. Students will read primary sources, theoretical treatises, novels, and poems; they will watch films and view paintings. During spring break, the group will travel to Turkey and visit Ephesus and Istanbul, two places that defy definition as either East or West. Departmental permission is required. Offered Every Other Winter.

**GLS 5500 Internship in Global Studies Cr. 3,6**

Offered for undergraduate credit only. Internship in a public or private organization related to global studies. Offered Every Term.  
**Prerequisite:** GLS 3700 with a minimum grade of C-

**GLS 5540 World Environmental History since 1900 Cr. 4**

This course examines the transformation of the relationship between human society and the natural environment in global context since 1900. Available for undergraduate credit only. Offered Fall.  
**Equivalent:** HIS 5540

**GLS 5700 Climate, Environment, and Media Cr. 3**

This course considers major environmental challenges, foremost among these climate change, through the interdisciplinary lenses of Environmental Media Studies and the Environmental Humanities. How do different media seek to tell the story of climate change, a massive problem that can be hard to visualize? How do the media tackle problems of disaster fatigue, environmental grief, and distraction, in order to continue to focus attention on one of the most significant challenges of the twenty-first century? How do they navigate the global scale of the problem while being mindful of local realities? What environmental impact do media themselves have? We will study an array of climate media from around the world, including feature films, documentary series, podcasts, and digital humanities projects, to analyze and critique genres and mediatic forms of climate protest, resistance, and activism. Offered Every Other Fall.

**Prerequisites:** GLS 2700 with a minimum grade of C-, GLS 2800 with a minimum grade of C-, GLS 2900 with a minimum grade of C-, ENG 2450 with a minimum grade of C-, ENG 3010 with a minimum grade of C-, COM 1700 with a minimum grade of C-, or COM 2010 with a minimum grade of C-

**GLS 5993 Writing Intensive Course in Global Studies Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Offered for S and U grades only. No degree credit. Required for all majors. Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a course designated as a corequisite. Satisfies the University General Education Writing Intensive Course in the Major requirement. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

## GPH - Geography

**GPH 1100 World Regional Patterns Cr. 4**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences  
Concepts and theory in analyzing areal relationships and distinguishing regional patterns of human activity; cultural factors and physical conditions (climate, landforms) as factors in regional delineations; comparisons and contrasts in regional economic development; analysis of concentrations/dispersals of human activity; local, national and regional phenomena in the interpretation of global patterns. Offered Every Term.

**GPH 2000 Introduction to Urban Studies Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences  
In this introductory urban studies course, students learn about the historic and contemporary forces driving urbanization with an emphasis on US cities and urban areas; the effects of these forces on diverse population groups; and challenges facing cities and strategies to resolve them. Although the course will draw from international contexts, wherever possible, experiences of and from the Detroit metro—city and suburbs—will be used to illustrate particular themes. Student learning centers on an examination of issues related to diversity, equity, and inclusion, and broader social phenomena. Offered Every Term.  
**Equivalent:** HIS 2000, PS 2000, SOC 2500, US 2000

**GPH 2200 Geography of Michigan Cr. 3**

The spatial physical, social, environmental, settlement and developmental patterns and problems of the State of Michigan. Offered Intermittently.

**GPH 2700 Introduction to Canadian Studies Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Survey of Canada in its cultural, literary, historical, geographical and political aspects; key concepts and social patterns that define the Canadian experience. Offered Intermittently.

**Equivalent:** ENG 2670, HIS 2700, PS 2700

**GPH 3130 Introductory Urban Geography Cr. 4**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences

Have you ever wondered why cities are the way they are? Why did humans start to live in cities in the first place? Why did they grow in the ways they did, and how do they function differently in different parts of the world? We explore the social, economic, and physical organization and functioning of cities in the US and all over the globe, aided by guest speakers who are experts on cities in Africa, Asia, and South America. We look at the ways space and place interact with money, power, and human nature to produce the built environment around us. And we explore the experience of living in a city through the lenses of culture, race, class, gender, and sexuality. Offered Yearly.

**GPH 3200 Europe Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences

Analysis of European countries. Emphasis on population changes resource problems, industrial location, urbanization, regional development, and emerging economic and political unities. Offered Intermittently.

**GPH 3600 Introduction to Geographic Information Systems Cr. 4**

Theory and application of computer-based systems for the analysis and representation of spatial data. Offered Yearly.

**GPH 3900 Topics in Urban Studies and Geography Cr. 1-4**

Special topics focused on Urban Studies and Geography. Offered Every Term.

**Equivalent:** US 3900

**Repeatable for 8 Credits**

**GPH 3990 Directed Study Cr. 1-3**

Readings and research. Offered Every Term.

**Repeatable for 9 Credits**

**GPH 4600 Advanced Geographic Information Systems Cr. 4**

Application of GIS to analyses of spatially-referenced data. Offered Yearly.

**Prerequisites:** GPH 3600 with a minimum grade of D-

**Repeatable for 998.99 Credits**

**GPH 6420 Quantitative Techniques I Cr. 4**

Statistical inference with emphasis on applications including central tendency, dispersion, hypothesis testing, correlation and regression. Offered for undergraduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** UP 6320

**GPH 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## GS - Graduate School

**GS 0900 Essential Research Practices: Responsible Conduct of Research Cr. 0**

This course presents both general and directed instruction/discussion in topics related to Responsible Conduct of Research (RCR). Available for S/U grading only. Offered Fall, Winter.

**GS 5785 Academic Writing for Graduate Students Cr. 2**

Emphasis on learning and executing written genres common to research and presentation activities in graduate school. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ENG 5785

**Repeatable for 6 Credits**

**GS 7890 Preparing Doctoral Trainees for Multiple Careers Cr. 1**

Offered by the Graduate School for doctoral students who wish to better prepare for various professional careers. Focuses on enhancing students' skill sets for navigating the job market. This course is open to doctoral students who have completed at least one year of coursework and who have not yet entered maintenance status. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 2 Credits**

**GS 7900 Introduction to College Teaching and Learning Cr. 1**

Provides an introduction to the principles and performance of college teaching through an examination of current research and best practices related to teaching and learning in a range of higher education settings and contexts (i.e., traditional, hybrid and online). It offers opportunities for the development and improvement of participants' instructional skills from both a theoretical and a practice-based understanding of excellence in teaching. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 2 Credits**

**GS 7991 Doctoral Program Internship Course Cr. 1-2**

Practical training experience in industry, government offices/labs or other professional settings. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 2 Credits**

## GSC - Global Supply Chain Management

**GSC 3600 Operations and Supply Chain Management Cr. 3**

Analysis of production and supply chain systems. Topics include forecasting, production planning and scheduling, quality control, cost control, inventory control, capacity planning, purchasing, logistics, risk management, and other related subjects. Extensive coverage of SCM strategy, manufacturing, and general SCM strategy related to purchasing and logistics. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**GSC 4500 Business Co-op Assignment Cr. 0**

Opportunity to put theory into practice on the job. Students will normally be assigned to cooperating business organizations for internship periods of one semester. No credit toward degree. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the BA in Business Administration or BS in Business Administration programs; enrollment is limited to Undergraduate level students.

**Equivalent:** ACC 4500, FIN 4500, MGT 4500, MKT 4500

**GSC 4990 Directed Study in Global Supply Chain Management Cr. 1-3**

Advanced readings and research or tutorial under supervision of faculty member. Offered Every Term.

**Prerequisites:** GSC 5620 with a minimum grade of C or BLG 5620 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BA in Business Administration or BS in Business Administration programs; enrollment is limited to Undergraduate level students.

**Repeatable for 3 Credits**

**GSC 4991 Study Abroad Cr. 3**

Study abroad programs in various countries. Programs run 10-15 days in length. Recent country programs have been in China; Netherlands, Germany, Poland; Italy and Canada. Travel within a given country with visits to various companies and cultural attractions. Traveling costs are over and above tuition and vary by country. Various reading and assignments required. Offered Winter, Spring/Summer.

**Equivalent:** MGT 4991, MKT 4991

**Repeatable for 6 Credits**

**GSC 5600 Logistics and Transportation Strategy Cr. 3**

An overview of logistics strategy with an emphasis on transportation. Study of the management of the movement of raw materials and finished products including the development of transportation strategies and objectives, and the selection of modes and carriers. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** GSC 3600 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students in the BA in Business Administration or BS in Business Administration programs; enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 5620 Global Supply Chain Management Cr. 3**

Concepts of managing operations and supply chains that span multiple countries. Topics covered include, Sourcing in International Settings, Global Logistics and Trade Management, Global Plant Location and Manufacturing Network Design, and Managing International Production Operations. Emerging concepts in the discipline will also be discussed. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the BA in Business Administration or BS in Business Administration programs; enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 5650 Strategic Procurement Cr. 3**

Principles of the purchasing function with topics including sourcing decisions, negotiations, buyer/seller relationships in the supply chain, supplier quality issues, supplier selection, price determination, ethical issues, legal issues, and international issues. Extensive coverage of automotive industry topics and perspectives. Offered for undergraduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the BA in Business Administration or BS in Business Administration programs; enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 5670 Special Topics in Supply Chain Management Cr. 3**

Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**GSC 5680 Production Planning and Control Cr. 3**

Concepts for planning and management of production resources in manufacturing organizations. Topics covered include: Demand Management, Sales and Operations Planning, Master Production Scheduling, Materials Requirement Planning, and Capacity Planning in a manufacturing environment. Emerging concepts in the discipline will also be covered. Offered for undergraduate credit only. Offered Fall.

**Prerequisites:** GSC 3600 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 5690 Principles of Quality Management Cr. 3**

Quality control overview with a focus on complex manufacturing industry processes for new product development and supplier quality in the auto industry. Topics include lean concepts, six sigma processes, FEMA, IATF16949 standards, APQP, PPAP, statistical quality control, control charts, and acceptance sampling procedures. Class will help prepare students for the Six Sigma Yellow Belt Certification. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** GSC 3600 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 5890 Internship in Global Supply Chain Management Cr. 3**

Student works a minimum of 160 hours. Offered for undergraduate credit only. Offered Every Term.

**Prerequisite:** (TIS 3630 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students in the BA in Business Administration or BS in Business Administration programs; enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 5930 Customs Administration and High Tech Purchasing Cr. 3**

The course covers two important topics: Customs Administration and High Tech Purchasing. In Customs Administration, the following are covered: historic and current issues related to international trade, trade policy, customs programs, import and export similarities and differences, and how organizations can leverage customs programs to improve financial results while mitigating risks and creating more efficient supply chains. In High Tech Purchasing, issues related to high tech purchasing of hardware and software will be covered. Specific topics will include negotiations, segmentation of relationships from market-based to strategic partnerships, sourcing strategies for autonomous vehicles, connectivity, and artificial intelligence; "Should Cost" analysis for highly complex components, the global semiconductor crisis - what happened and how it can be prevented in the future; and negotiation strategies in an ultra-rapid changing tech market. Offered Winter.

**GSC 5980 Healthcare Supply Chain Management Cr. 3**

Introduction to industries and disciplines within healthcare supply chain management. Topics include medical device manufacturing, pharmaceuticals, lean principles in healthcare, quality management, logistics, hospital materials management, purchasing and disaster preparedness. Offered Fall.

**GSC 5996 Process Analysis and Cost Estimating for Buyers Cr. 3**

Focused on providing future buyers and SCM professionals an understanding of basic production processes and the cost and quality drivers that impact supplier performance. Helps buyers learn what to look for when visiting suppliers. Teaches students how to identify and evaluate supplier cost and quality drivers. There will be multiple supplier visits during class hours. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** GSC 3600 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 6000 Consultative Analysis and Executive Presentation Cr. 3**

Students will gain consulting skills for supply chain issues including situational and data analysis, strategy, communicating insights, persuasion and executive presentation skills. Students will conduct in-depth case study analysis, and present results with live peer feedback with special focus on research, approach, analytical tools and professional delivery. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 6997 Global Supply Chain Analysis and Planning Cr. 3**

Capstone course in the Global Supply Chain Management Major. An emphasis on analysis, planning and strategy. Use of supply chain simulation games and/or cases to provide students with a comprehensive view of supply chain issues and management. Provides students with an experience of running a supply chain using a simulation. Topics include: forecasting, purchasing, logistics, inventory management, production planning, project management, utilization of decision making tools, executive communication skills, and teambuilding. Offered Every Term.

**Prerequisites:** GSC 3600 with a minimum grade of D-, GSC 5600 with a minimum grade of D-, and GSC 5650 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students in the BA in Business Administration or BS in Business Administration programs; enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**GSC 7000 Consultative Analysis and Executive Presentation Cr. 3**

This course will help students gain consulting skills for supply chain issues. Aspects including situational and data analysis, strategy, communicating insights, persuasion and executive presentation skills. Students will conduct in-depth case study analysis, and present results with live peer feedback. Special focus on research, approach, analytical tools and professional delivery. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7010 Manufacturing and Supply Chain Analytics Cr. 3**

Discussion of the strategic and tactical issues surrounding the design and operation of supply chains through effective information collection, sharing, and collaboration, an understanding of applied analytical tools and methods that can be used to make better supply chain decisions and practical application of supply chain advanced planning and optimization solutions. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7100 Study Abroad Cr. 3**

Study abroad programs in various countries. Travel within a given country with visits to various companies and cultural attractions. Traveling costs are over and above tuition and vary by country. Various reading and assignments required. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**GSC 7260 Theory of Constraints: Breakthrough Solutions Cr. 3**

Problem solving based on Theory of Constraints logic process. Use of cause-effect logic diagrams to identify root cause of problems, discover breakthrough solutions, specify expected results of these solutions (including negative side effects which can thus be avoided), overcome obstacles to implementation, and construct a detailed plan for implementation of solutions. Applications to management of business and other operations. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7620 Global Logistics Management Cr. 3**

Introduction to global logistics management, integrating materials management and physical distribution through the investigation of transportation, inventory, handling and storage, acquisition, order processing and facility location subsystems. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7650 Strategic Procurement Cr. 3**

Creation of competitive advantage with superior procurement management. Topics include: negotiating, relationship to the supply chain, quality issues, supplier selection and management, quantity and delivery, and price determination. Strategic, ethical, legal and international issues. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7670 Special Topics in Supply Chain Management Cr. 3**

Topics range from automotive supply chain management to international supply chain management fields and countries. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**GSC 7680 Manufacturing Planning and Control Cr. 3**

Covers concepts for management of production resources in manufacturing organizations. Topics covered include demand management, sales & operations planning, master production scheduling, material requirement planning, capacity planning & management and production activity control. Emerging concepts in the discipline will also be discussed. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7890 Internship in Global Supply Chain Cr. 1-3**

Student works in an entry-level management position in global supply chain. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**GSC 7910 Managing Automotive Supply Chains Sustainability Cr. 3**

Covers concepts for sustainable management of supply chains taking a holistic view of the interaction between firms, environment and society. Topics covered include: supplier management for sustainability, measurement of environmental and social impact, Life Cycle Analysis (LCA), conflict minerals reporting, automotive industry guiding principles for sustainability, lean and green interface, product design for sustainability, recycling, reusing, and reverse logistics. Emerging concepts in the discipline will also be discussed. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7920 Supply Chain Process Analysis and Costing Cr. 3**

Develops understanding about manufacturing processes in a wide range of products. The class will also help develop skills for cost estimating and managing sourcing in manufacturing environments. Topic covered include, how to conduct supplier site visits, viewing sales pitches, learn different types of manufacturing processes for metals, plastic and electronics and how to estimate their costs. Travel in the Detroit area will be required for the class. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7930 Customs Administration and High Tech Purchasing Cr. 3**

The course covers two important topics: Customs Administration and High Tech Purchasing. In Customs Administration, the following are covered: Historic and current issues related to International Trade, Trade Policy, Customs programs, Import and Export similarities and differences, and how organizations can leverage Customs programs to improve financial results while mitigating risks and creating more efficient supply chains. In High Tech Purchasing, issues related to high tech purchasing of hardware and software will be covered. Specific topics will include negotiations, segmentation of relationships from market-based to strategic partnerships, sourcing strategies for autonomous vehicles, connectivity, and artificial intelligence; "Should Cost" analysis for highly complex components, the global semiconductor crisis - what happened and how it can be prevented in the future; and negotiation strategies in an ultra-rapid changing tech market. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.



**GSC 7950 Auto Industry SCM Capstone Cr. 3**

Provides a study of issues in managing automotive supply chains such as: supply chain strategy, managing global manufacturing networks, logistics and trade management in auto networks, make-buy decisions, total cost of ownership, global automotive component sourcing and logistics, managing quality and risk, etc. Case situations of real companies facing these issues will be analyzed. Offered Winter.

**Prerequisite:** GSC 7620 with a minimum grade of C and GSC 7650 with a minimum grade of C and GSC 7680 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7960 Lean Six Sigma Cr. 3**

All organizations strive to improve efficiency and reduce waste, i.e. become lean enterprises. This course provides students with the core concepts related to managing lean organizations and implementing six sigma. Topics covered include, lean principles, process capability, value stream mapping, process improvement, and six sigma implementation. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7980 Healthcare Supply Chain Management Cr. 3**

Introduction to industries and disciplines within healthcare supply chain management. Topics include medical device manufacturing, pharmaceuticals, lean principles in healthcare, quality management, logistics, hospital materials management, purchasing and disaster preparedness. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7991 Principles of Quality Management Cr. 3**

Introduction to philosophies of quality management and quality certification standards such as ISO 9000. System analysis, business process design, leadership, benchmarking, quality standards, performance standards, customer focus. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7992 Methods of Quality Management Cr. 3**

Selection, implementation and applications of the most commonly-used quality methods: statistical process control, design of experiments, process analysis, error proofing, decision analysis, and response surface methods. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSC 7995 Directed Study in Global Supply Chain Cr. 1-3**

Advanced independent readings and research under supervision of a graduate faculty member, in areas of special interest to student and faculty member. Offered Every Term.

**Prerequisites:** GSC 7620 with a minimum grade of C or GSC 7650 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**Repeatable for 3 Credits**

## GSW - Gender, Sexuality and Women's Studies

**GSW 2100 Introduction to Queer Studies Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

This course is an introduction to the interdisciplinary academic field of Queer Studies. The course begins with an overview of queer terminology and identities, and includes units on topics including Queer History, Queer Theory, Contemporary Queer Issues, and Queer Art. Offered Yearly.

**GSW 2360 Feminist Philosophy Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry

An examination of work by feminist philosophers. Offered Winter.

**Equivalent:** PHI 2360

**GSW 2500 Humanities Perspectives on Gender, Sexuality, and Women Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry, Philosophy Letters

Questions surrounding gender and sexuality, focusing on the ways in which they have been constructed and represented in different historical periods and geographical location through literature, film, visual objects, the media, and other texts. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**GSW 2530 Queer Literatures: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

Introduction to the study of queer genders and sexualities through the exploration of literary and cultural texts. Offered Intermittently.

**Equivalent:** ENG 2530

**GSW 2570 Women Writers: Writing about Texts Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry, Intermediate Comp Pre-2018

Introduction to the major themes and issues in writings by women. Reading and writing about representative fictional and non-fictional works. Offered Yearly.

**Equivalent:** ENG 2570

**GSW 2600 History of Women, Gender and Sexuality in the Modern World Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Global Learning Inquiry, Historical Studies

Examination of change over time, using different historical approaches to try to account for change as specifically applicable from a comparative perspective to the experiences of women and constructions of gender and sexual identity. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** HIS 2605

**GSW 2650 Gender and Crime Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

Critical examination of gender-related issues in criminal justice; impact on defendants, inmates, victims, and criminal justice personnel; relation to policy issues. Offered Yearly.

**Equivalent:** CRJ 2650

**GSW 2700 Social Science Perspectives on Gender, Sexuality, and Women Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

Understanding the ways in which political, social and cultural institutions shape gender, sexuality, and women's experiences within a local and global context. Offered Fall, Winter.

**GSW 2750 Diversity Issues in Criminal Justice Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

Critical examination of gender, race, class, and ethnicity issues in criminal justice; impact on defendants, inmates, victims, and criminal justice personnel; relation to policy issues. No credit after CRJ/GSW 3750. Offered Yearly.

**Equivalent:** CRJ 2750

**GSW 3000 Themes in Gender and Sexuality Cr. 3**

Themed course on various topics related to gender and sexuality studies, with course theme announced each time the course is offered. Special attention will be paid to research skills and academic writing. Offered Yearly.

**Repeatable for 6 Credits**

**GSW 3100 Womxn of Color: Social Activism and Power Cr. 3**

This course will explore the ways in which Womxn of Color have impacted the trajectory of the social justice movement in the US through scholarship and sisterhood, despite racism, sexism, and classism. During this interdisciplinary study, learners will look at the history of Womxn of Color in the feminist movement and how it parallels the current movement. This course will answer the questions, "what has been done?" and "where do we go from here?" GSW 3100 will be the course home for the Office of Multicultural Student Engagement's Learning Community for Womxn of Color, RISE. RISE is a learning community that focuses on social belonging by cultivating an environment that promotes the sisterhood and success of Womxn of Color. Offered Fall, Winter.

**GSW 3200 Introduction to Gender, Sexuality, and Women's Studies Cr. 3**

This course is an introduction to key themes and methodologies within the interdisciplinary and overlapping fields of feminism, gender studies, and queer theory, with a focus on both foundational readings and contemporary experiences. In addition to exploring and evaluating diverse methods of inquiry into the intersectional experiences of gender and sexuality the course will help develop critical reading and writing strategies in Gender, Sexuality, and Women's Studies. Offered Yearly.

**GSW 3240 Queer Film and Media Cr. 3**

Queer voices have been an integral part of cinema since its inception in the late nineteenth century. Students in this course will study the intersections of queer lives with the industry and artistry of film and media. To do this, we will revisit film history with an eye for the queer experience, identify landmark works and key pioneers of queer cinema, consider how queer representations have shifted across decades, and analyze the integral themes and styles of queer media. Offered Yearly.

**Equivalent:** COM 3240

**GSW 3300 Black Women Writers Cr. 3**

Students will explore the writings of Black women across a broad range of genres, which may include poetry, short stories, drama, essays, and novels. Offered Intermittently.

**Equivalent:** AFS 3300

**GSW 3990 Directed Studies Cr. 1-3**

Individually-designed research projects, developed with a supervising professor and approved by program director. Offered Every Term.

**GSW 5030 Topics in Women's Studies Cr. 3**

Thematic, critical or generic study of women and literature. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Equivalent:** ENG 5030

**Repeatable for 9 Credits**

**GSW 5035 Topics in Gender and Sexuality Studies Cr. 3**

Advanced course on issues of sexuality and gender as mediated through literary and cultural study. Attention to critical theory as well as various literary and cultural forms. Topics to be announced in Schedule of Classes. Offered Yearly.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Equivalent:** ENG 5035

**Repeatable for 9 Credits**

**GSW 5110 Black Women in America Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Social, cultural, artistic and economic development of Black women in America; topics include: racism, sexism, marriage, motherhood, feminism, and the welfare system. Offered Yearly.

**Equivalent:** AFS 5110

**GSW 5200 Feminist, Gender, and Queer Theory Cr. 3**

Overview of feminist, gender and queer theory, focusing on the three "waves" and the social, political, and cultural construction of femininities, masculinities, and sexualities. Offered Yearly.

**Prerequisites:** GSW 2500 with a minimum grade of D-, GSW 2600 with a minimum grade of D-, or GSW 2700 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**GSW 5300 Topics in LGBTQ Studies Cr. 3**

Focused examinations of LGBTQ studies from different disciplinary perspectives, including but not limited to literary, historical, and media studies; social sciences; and philosophy. Topics to be announced in Schedule of Classes. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** GSW 2500 with a minimum grade of D-, GSW 2600 with a minimum grade of D-, or GSW 2700 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**GSW 5400 Topics in Gender and Women's Studies Cr. 3**

Focused examination of gender and women from different disciplinary perspectives, including but not limited to literary, historical, and media studies; social sciences; and philosophy. Topics to be announced in schedule of classes. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** GSW 2500 with a minimum grade of D-, GSW 2600 with a minimum grade of D-, or GSW 2700 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**GSW 5500 Internship in Gender, Sexuality, and Women's Studies Cr. 3**

Internship in a public or private organization related to gender, sexuality, or women's studies. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**GSW 5875 Gender in Modern East Asia Cr. 4**

History of gender in China, Japan, and Korea, with topics to include Confucianism, the state's role in gender construction, nationalism, imperialism, marriage, family, labor, sexuality, and feminism. Offered Every Other Year.

**Equivalent:** ASN 5875, HIS 5875

**GSW 5990 Senior Project Seminar Cr. 4**

Scholarly research project or internship combined with scholarship, resulting in substantial paper. Students meet with instructor several times during semester. Offered Yearly.

**Prerequisite:** GSW 5200

**GSW 7200 Feminist, Gender, and Queer Theory Cr. 3**

Overview of feminist, gender and queer theory, focusing on the three "waves" and the social, political, and cultural construction of femininities, masculinities, and sexualities. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**GSW 8150 Seminar in the History of Gender, Women and Sexuality Cr. 3**

Research seminar in the History of Gender, Women, and Sexuality. Topics vary by Term. Offered Yearly.

**Prerequisites:** HIS 7830 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 8150

**Repeatable for 6 Credits**

## HE- Health Education

**HE 1010 Foundations of Health and Health Promotion Cr. 3**

Foundations of the community health education profession and practice, including history, settings, organizations, ethics and employment. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**HE 2310 Dynamics of Personal Health Cr. 3**

Critical health issues relevant to both traditional and non-traditional college students today. In-depth study of varied health issues and applications to personal, family and community needs. Offered Every Term.

**HE 2320 Advancing Policy in Community Health Education Cr. 3**

Provides an overview of the community health policy process, advocacy and social, political and environmental issues affecting urban populations. Offered Winter.

**HE 3300 Health of the School Child Cr. 3**

Health status and problems of school-age children. Role of teacher and schools in promoting healthy behavior. Emphasis on impact of institutional forces (e.g., family, media) on development of children's health beliefs and behavior. Offered Every Term.

**HE 3344 Methods and Materials in Community Health Education Cr. 3**

Frameworks, practical applications and mechanics of conducting health interventions in community settings. Offered Every Other Year.

**Prerequisites:** HE 1010 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**HE 3440 Nutrition and Health Education Cr. 3**

Relationships between dietary intake and health status in various populations. Role and responsibilities of health educators in nutrition programs. Concepts from health psychology applied to school and community approaches. Offered Fall, Winter.

**HE 3500 Human Disease Cr. 3**

Body system impairments from disease, injury or congenital abnormalities that relate to morbidity and mortality in the U.S. Signs, symptoms, causes, prevention, and treatment. Offered Fall, Winter.

**Prerequisite:** HE 3440 with a minimum grade of C or NFS 2030 with a minimum grade of C

**HE 3990 Individual Problems in Health Cr. 1-3**

Solving a specific personal health problem or studying a specific community health problem under the guidance of divisional staff. Offered Every Term.

**Prerequisite:** HE 2310 with a minimum grade of C or HE 2320 with a minimum grade of C

**Repeatable for 3 Credits**

**HE 4010 Foundations of Community Health Program Planning Cr. 3**

Introduction and practical application of health promotion program planning, including: developing a need assessment, recruiting community support, writing program goals and objectives, developing a program plan, identifying existing interventions and/or designing new intervention activities to address program objectives, using theory to enhance effective programming, program implementation, budgeting and measurement. Offered Winter.

**Prerequisites:** HE 1010 with a minimum grade of C

**HE 4902 Health Education Internship Cr. 5-6**

Students contribute expertise and enthusiasm to their host agency and demonstrate their ability to perform the duties of a community health professional. Offered Every Term.

**Prerequisites:** HE 4010 with a minimum grade of D- (may be taken concurrently), HE 5522 with a minimum grade of D-, and HE 6330 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$16

**Repeatable for 6 Credits**

**HE 5522 Health Psychology Cr. 3**

Foundations of health, research methods, biological foundations of health/illness, stress, nutrition, obesity, eating disorders, substance abuse and health, cardiovascular disease, diabetes and health, exercise and cancer; HIV, AIDS, and health; pain management and patient behavior, complementary and alternative medicine, health psychology across the life span. Offered Fall.

**Prerequisites:** PSY 1010-6999

**HE 6000 Yoga: History, Philosophy, and Practice Cr. 3**

The in-depth study of yoga history, philosophy, research, and ethics, as well as the physical and mental practice, used for self-care as well as introducing professional training. Offered Every Term.

**HE 6050 Mindfulness: Philosophy, Theory, Practice, and Research Cr. 3**

The in-depth study of mindfulness history, theory, research, and practice used for self-development and self-care. The course prepares students to successfully complete an optional Mindfulness-Based Stress Reduction (MBSR) training and receive a MBSR certificate of completion. Offered Every Term.

**HE 6100 Health Communication Methods and Techniques Cr. 3**

Provides students with a framework for identifying, understanding, creating and evaluating health communication efforts. Focus will be on multilevel health communication and behavior change, factors affecting communication and the development of effective materials. Offered Intermittently.

**HE 6200 Yoga and Mindfulness in Professional Practice Cr. 3**

Introduction to yoga and mindfulness as applied to professional settings. Topics will include the research on and availability of yoga & mindfulness programs in a variety of professions, how to design a yoga and/or mindfulness program in varied settings, and also a discussion of concerns, ethics, self-care, and scope of practice. Offered Every Term.

**Prerequisite:** HE 6000 with a minimum grade of C and HE 6050 with a minimum grade of C

**HE 6310 Reproductive Health Education Cr. 3**

Program planning, curriculum development and classroom teaching strategies in the areas of human sexuality, reproductive health and venereal disease, family planning and family health. Course will satisfy Michigan Department of Education requirements for teaching in these areas. Offered Fall.

**HE 6320 Mental Health and Substance Abuse Cr. 3**

Identification, treatment, and prevention of mental health/substance abuse problems. How school-age children and their families are affected by these problems; role of the teacher. Offered Fall, Winter.

**HE 6330 Health Behavior Change Cr. 3**

Principles of behavior modification; theories of health behavior and program planning as they relate to health promotion and wellness. Offered Fall, Winter.

**Prerequisites:** PSY 1010-6999 and (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C)

**HE 6340 Advanced Concepts in Health Cr. 3**

An in-depth study of health content areas taught in the K-12 school system. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Health & Phys Ed Teaching.

**HE 6360 Performance Based Assessment Cr. 3**

Assessment and evaluative techniques applied to health education, including test construction and performance-based assessment. Designed to meet assessment and evaluative competencies required for entry-level health teachers in Michigan. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.

**HE 6420 Introduction to Health Education Program Design Cr. 3**

Overview of health education program process in all practice settings. Introduction to needs assessment, objective writing, staff training, and evaluation in health education. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HE 6500 Secondary Health Methods Cr. 3**

Principles, curriculum development and techniques in teaching health grades 6-12. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

**HE 6501 Measurement and Evaluation in Community Health Education Cr. 3**

Frameworks, principles, models and strategies for evaluating health education programs. Offered Fall.

**Prerequisites:** HE 4010 with a minimum grade of C or HE 6420 with a minimum grade of C

**HE 6530 Principles and Practice of Health Education and Health Promotion Cr. 3**

Principles, resources and practical application of community health education in various settings, with emphasis on the role of the community health education specialist. Offered Every Other Year.

**HE 6560 Integrating Evidence-Based Practices in Community Health: Translating Research-To-Practice Cr. 3**

Integrating evidence-based practices into community health settings is recognized as the foundational gold standard for improving population health and is a key skill required of community health specialists. This course will examine approaches, including theories and frameworks, which can be utilized to guide the effective translation of evidence-based community health interventions into practice. It will also help prepare students to identify and implement best practices that are theory-based, evidence-based, community-based, and reality-based. Offered Intermittently.

**HE 6570 Advancing Community Health and Health Equity Cr. 3**

Examines approaches in policy and advocacy to advance health equity and community health. Social and public health injustices among key populations will be reviewed and the saliency of policy and advocacy advancement strategies to improve health of disenfranchised populations will be discussed and assessed. Offered Intermittently.

**HE 7051 Measurement and Evaluation in Community Health Education Cr. 3**

Frameworks, principles, models and strategies for evaluating health education programs. Offered Every Other Year.

**Prerequisite:** HE 6420 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**HE 7200 Grant Writing and Management in Health Sciences Cr. 3**

Provides a hands-on approach to grant writing for health sciences programs. Strategies and tactics for seeking out, developing and managing proposals for health programs will be discussed. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

## HEB - Hebrew

**HEB 1010 Elementary Hebrew I Cr. 4**

Reading, writing, and speaking. Emphasis on Modern Hebrew. Offered Fall.

**Fees:** \$5

**HEB 1020 Elementary Hebrew II Cr. 4**

Continuation of HEB 1010. Offered Winter.

**Prerequisites:** HEB 1010 with a minimum grade of D-

**Fees:** \$5

**HEB 2010 Intermediate Hebrew I Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Reading of additional cultural texts. Offered Fall.

**Prerequisites:** HEB 1020 with a minimum grade of D-

**Fees:** \$5

**HEB 2020 Intermediate Hebrew II Cr. 4**

Reading, writing, and conversational texts. Offered Winter.

**Prerequisites:** HEB 2010 with a minimum grade of D-

**Fees:** \$5

**HEB 3990 Directed Study Cr. 1-4**

Assigned readings of intermediate and advanced texts. Offered Every Term.

**Repeatable for 4 Credits**

**HEB 5990 Directed Study Cr. 3-6**

Assigned readings of advanced texts; guided texts. Offered Every Term.

**Repeatable for 9 Credits**

## HIS - History

**HIS 1000 World Civilization to 1500 Cr. 4**

**Satisfies General Education Requirement:** Global Learning Inquiry, Historical Studies, Social Inquiry

Survey of ancient and medieval history from the Neolithic Revolution to 1500. Offered Every Term.

**HIS 1001 Introduction to History Cr. 3**

History is facts and dates, but it's also much more than that. History is produced by historians who marshal evidence to tell stories about those who came before us and make arguments about the past. We work with an ever-growing range of sources – from material culture and popular culture to archival documents and beyond. We think historically. In the process, we attempt to reconstruct and understand the decisions that individuals made and the consequences of those decisions – what happened and why/how does it matter? These are questions about both the past and the present. This course helps break down the act of producing history, introducing you to this process and helping you begin to hone your skills as a historian. Offered Fall.

**HIS 1050 History of the Headlines: United States Since World War II Cr. 3**

**Satisfies General Education Requirement:** American Society Institution, Civic Literacy, Social Inquiry

Recent American social issues, political movements, institutions, and policy developments within the broad context of global change and conflict. Offered Every Term.

**HIS 1060 Law, Citizenship, and American Culture Cr. 3**

**Satisfies General Education Requirement:** Civic Literacy

Explores the foundations, development, and evolution of relations among law, constitutionalism, and American society from early England into the late 20th century. Emphasis on the emergence and expansion first of a republic and then of republican citizenship with its incidents and privileges. Offered Every Other Year.

**HIS 1110 Work and Democracy: An Introduction Cr. 3**

**Satisfies General Education Requirement:** Civic Literacy

The course explores the role that labor and the labor movement have played in shaping democracy in the United States over the past two centuries and the limits of democracy in the workplace. It covers key political achievements of labor and workers' organizations and the contemporary challenges they face today. Key themes include labor and citizenship, industrial democracy, the role of the state in mediating labor relations, gender, race, sexuality and labor, the labor movement as a social movement, and power and politics in the workplace. Offered Every Term.

**Equivalent:** ANT 1110, ELR 1110, PS 1110



**HIS 1300 Europe and the World: 1500-1945 Cr. 4**

**Satisfies General Education Requirement:** Historical Studies, Social Inquiry

The rise of the modern West and the response of the non-West from the age of exploration to the end of World War II. The foundations of the contemporary world. Offered Every Term.

**HIS 1400 The World Since 1945 Cr. 4**

**Satisfies General Education Requirement:** Global Learning Inquiry, Historical Studies, Social Inquiry

Selected topics in world history since 1945, including: impact of World War II on Europe and European empires; bipolar division of the world between the United States and the Soviet Union; the international order and relations between the industrial nations (First World) and the developing nations (Third World). Offered Every Term.

**HIS 1600 African Civilizations to 1800 Cr. 3-4**

**Satisfies General Education Requirement:** Historical Studies, Social Inquiry

Africa from ancient Egypt to the Atlantic slave trade. Emphasis on state-building; regional and international commercial networks and their role in economic, political, and socio-cultural change. Offered Fall, Winter.

**HIS 1610 African Civilizations Since 1800 Cr. 3-4**

**Satisfies General Education Requirement:** Global Learning Inquiry, Historical Studies, Social Inquiry

The origins of contemporary Africa, nineteenth century state-building, spread of Islamic religion, establishment of European empires, independence struggles, and problems of independence. Offered Fall, Winter.

**HIS 1700 East Asia to the 1700s Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry

From antiquity to the 1700s; emphasis on political, economic, social, and cultural developments in China, Japan, and Korea, and the nature and impact of their interactions. Offered Intermittently.

**Equivalent:** ASN 1700

**HIS 1710 History of Modern East Asia Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Historical Studies, Social Inquiry

From beginning of nineteenth century to the present; emphasis on political, social and economic developments in China, Japan and Korea. Offered Yearly.

**Equivalent:** ASN 1710

**HIS 1800 The Age of Islamic Empires: 600-1600 Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Historical Studies

Historical evolution of the Islamic world from birth of Islam to height of Ottoman Empire. Islamic history and civilization in a world-historical context; developments indigenous to specific regions, such as Islamic Spain. Offered Every Term.

**Equivalent:** NE 2030

**HIS 1810 The Modern Middle East Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Historical Studies

Survey of Middle East history in modern era, focusing on the nineteenth and twentieth centuries. Ottoman history from 1600: impact of European imperialism and nationalist movements, resulting in development of modern state systems, regional/national conflicts, and Islamic response to modernization. Offered Every Term.

**Equivalent:** NE 2040

**HIS 1900 History of Colonial Latin America Cr. 3**

**Satisfies General Education Requirement:** Historical Studies, Social Inquiry

The Spanish and Portuguese conquests in the Americas; the multi-racial and class social structures they established as colonies, and the movements for independence, 1492-1822. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** LAS 1900

**HIS 1910 Latin America from Independence to the Present Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Global Learning Inquiry, Historical Studies, Social Inquiry

Latin America from early nineteenth century to the 1980s. Major themes include: 1) colonial pasts and political independence; 2) state formation, and the construction of identities at local and national levels; 3) elite and popular relations, including cases of rebellion, revolution, and state repression; 4) forms of capitalist development and transformations in class relations, ideologies of economic development, and linkages to the United States. Offered Yearly.

**Equivalent:** LAS 1910

**HIS 1995 Nature and Societal Transitions Cr. 3**

**Satisfies General Education Requirement:** Historical Studies, Social Inquiry

A survey of the historical evolution of human societies and the accompanying technological transformations of our relationship with the natural world. Examines the most significant transformations in our way of life as a species: our evolutionary development as hunter-gatherers, the invention of agriculture, the rise of civilizations, and the industrial revolution. Offered Yearly.

**HIS 2000 Introduction to Urban Studies Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

In this introductory urban studies course, students learn about the historic and contemporary forces driving urbanization with an emphasis on US cities and urban areas; the effects of these forces on diverse population groups; and challenges facing cities and strategies to resolve them. Although the course will draw from international contexts, wherever possible, experiences of and from the Detroit metro—city and suburbs—will be used to illustrate particular themes. Student learning centers on an examination of issues related to diversity, equity, and inclusion, and broader social phenomena. Offered Every Term.

**Equivalent:** GPH 2000, PS 2000, SOC 2500, US 2000

**HIS 2040 American Foundations to 1877 Cr. 3-4**

**Satisfies General Education Requirement:** Civic Literacy, Social Inquiry

A survey of America's experience with colonialism, revolution, and nation building, with special attention paid to freedom and slavery, democracy and citizenship, social and cultural change, American identity, and institutional responses to political, social, and economic issues. Offered Every Term.

**HIS 2050 Modern America: Since 1877 Cr. 3-4**

**Satisfies General Education Requirement:** Civic Literacy, Social Inquiry

A survey of America's modern experience, with a focus on industrialization, urbanization, social change, cultural development, and political life during the emergence and evolution of the United States as a world power. Offered Every Term.

**HIS 2240 History of Michigan Cr. 3-4**

Social and economic development of the state, from French explorations to the present. Offered Every Term.

**HIS 2350 Black Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Explores the historical, cultural and structural aspects of the Black urban experience in Detroit from the late 19th Century to the present, including the role that racism, urbanization and suburbanization have played in shaping racial, spatial and economic inequality in the Detroit Metropolitan area. Utilizes an interdisciplinary approach: to interrogate the social and cultural history of Black Detroit, to examine the various forms of Black social movement activism used by Black Detroiters in the 20th Century, and to analyze ways the shifting economic and political currents shaped, and reshaped racism, class, space, and resistance in the Detroit metropolitan area. Offered Fall, Winter.

**Equivalent:** AFS 2350, US 2350

**HIS 2420 History of Puerto Rico and Cuba Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry  
Historical development of Puerto Rico and Cuba from the pre-Columbian period to the present. Interaction of political, social, economic and cultural influences. Offered Intermittently.

**Equivalent:** LAS 2420

**HIS 2430 History of Latino/as in the United States Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Historical development of people of Hispanic descent in the United States from the early nineteenth century to the present. Cultural conflict, and interaction of political, social, and economic forces. Offered Yearly.

**Equivalent:** LAS 2430

**HIS 2435 Introduction to Digital Humanities Cr. 3**

Digital humanities scholarship has exploded over the last ten years. Early DH scholarship represented a niche in humanities fields like English and History, dominated by unique individuals who had both technical programming skills and experience in humanities research. Since its early days, the field of digital humanities has expanded significantly. New tools and platforms make DH research more accessible. Today, DH scholars work in a highly collaborative, interdisciplinary environment that place programmers and developers, information science specialists, and humanities scholars in active conversation. In this course, students will be introduced to these different elements – tools, methods, theories, and critical analysis – of the digital humanities in order to learn new ways to interpret artistic or cultural objects or ideas, social relationships, and historical processes. Offered Yearly.

**Equivalent:** ENG 2435

**HIS 2440 History of Mexico Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry  
Historical development of Mexico and the Mexican people from the Spanish conquest to the present. Interaction of political, social, economic and cultural influences. Offered Yearly.

**Equivalent:** LAS 2410

**HIS 2500 Introduction to Peace and Conflict Studies Cr. 3**

Introduction to the peace and conflict studies co-major. Survey, ranging from biology and conflict among animals to disputes involving the individual, the family, the neighborhood and region, the nation and global or international community. Definitions and approaches to peace. (Some sections linked to Peace and Justice Learning Community.) Offered Yearly.

**Equivalent:** PCS 2000, PS 2820

**HIS 2510 Science, Technology, and War Cr. 4**

Modern weapons, nuclear and otherwise are becoming increasingly available and dangerous; people with grievances seem eager to use them. Science and technology, as well as constraints of bureaucracy and society underpin weapons development and use, as technologies affect prospects and results of war and peace. History of humanity and its tools of war. Offered Yearly.

**Equivalent:** PCS 2020, PHY 2020, PS 2440

**HIS 2520 Topics in Peace and Conflict Studies Cr. 1-4**

Special topics relating to peace and conflict studies. Offered Every Term.

**Equivalent:** PCS 2010, PS 2830

**Repeatable for 12 Credits**

**HIS 2530 The Study of Non-Violence Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Intellectual and social roots of non-violence and the practice of non-violence in different people's life styles. Historical and political forces and movements related to non-violence. (Some sections linked to Peace and Justice Learning Community.) Offered Every Term.

**Equivalent:** PCS 2050, PS 2550, SOC 2050

**HIS 2605 History of Women, Gender and Sexuality in the Modern World Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Global Learning Inquiry, Historical Studies  
Examination of change over time, using different historical approaches to try to account for change as specifically applicable from a comparative perspective to the experiences of women and constructions of gender and sexual identity. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** GSW 2600

**HIS 2700 Introduction to Canadian Studies Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry  
Survey of Canada in its cultural, literary, historical, geographical and political aspects; key concepts and social patterns that define the Canadian experience. Offered Intermittently.

**Equivalent:** ENG 2670, GPH 2700, PS 2700

**HIS 2800 Introduction to Global Issues and Institutions Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences  
Provides a broad overview of some of the big and controversial questions facing our increasingly globalized world today and introduces some of the tools we have to confront these issues. Topics include the conflict and security threats, protection of human rights, global warming, and resource management. Offered Fall, Winter.

**Equivalent:** GLS 2800

**HIS 3000 The Historian's Craft Cr. 3**

Provides an introduction to the discipline of history and the methodological skills that historians need to explore their areas of interest. Offered Fall, Winter.

**HIS 3010 Jewish History from the Bible to Present Cr. 3**

This course will survey the 3000-year history of the Jews from biblical antiquity to the present. The course will explore a wide variety of topics, but will focus around three central themes: the emergence of Judaism and the Jewish life in the diaspora out of the religious and social matrix of ancient Israelite society, in response to the challenges of Hellenistic culture; the disparities between Jewish life under Christianity and Islam; and the challenges of being Jewish in the modern world. Throughout the course, the dual emphasis will be placed on the broader context in which Jews lived as an ethnic and religious minority — the Ancient Near East, the Hellenistic world, the Roman Empire, Christendom, Islam, Europe, Russia, America, and the modern Middle East — and the internal development of Judaism and the Jewish community in these diverse situations. Offered Intermittently.

**Equivalent:** NE 3010

**HIS 3140 African American History I: 1400-1865 Cr. 3-4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry African origins of African Americans; transition from freedom to slavery; status of African Americans under slavery. Offered Yearly.

**Equivalent:** AFS 3140

**HIS 3150 African American History II: 1865-1968 Cr. 3-4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry African American history from Reconstruction through the Civil Rights Movement. Offered Yearly.

**Equivalent:** AFS 3150

**HIS 3155 African American History III: 1968 - Present Cr. 3-4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry History of African Americans' struggle against persistent and stubborn racism, efforts to achieve full citizenship, and legal and economic justice after 1968. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** AFS 3155

**HIS 3160 Black Urban History Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry Historical experience of African Americans in urban areas; impact of their communities on urban development from 1860 to contemporary times. Offered Fall, Winter.

**Equivalent:** AFS 3160

**HIS 3170 Ethnicity and Race in American Life Cr. 3-4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry Exploration of complicated relationship between ethnic and racial diversity and the making of America. Using historical, literary, and cultural readings and sources to examine key themes: Who was the "Other"? What is an "American"? Offered Yearly.

**Equivalent:** AFS 3170

**HIS 3180 Black Social Movements Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry Survey of mass or popular Black movements with emphasis on their political and cultural impact, historical continuity and organization. Offered Yearly.

**Equivalent:** AFS 3180

**HIS 3205 Queer American History Cr. 3**

Queer American History will provide students with a comprehensive course on US History from a queer theoretical framework, introducing students to core concepts in queer history, LGBTQ+ history, gender history and gender studies in the process. Topics addressed in this course range across a variety of interdisciplinary subjects including discussions pertaining to sexual and family politics, bodily autonomy, federal welfare and employment policy, public health, psychological approaches to identity, sexual orientation, gender identity and expression, intersectional identity, and gender and sexual performativity, among others. Offered Yearly.

**HIS 3220 Labor in Media and Popular Culture Cr. 3**

The course explores labor behind and in popular culture in the United States. We will use themes of race, gender, technology, and class to explore popular culture, cultural workers, and their relationship to labor organizations in the 20th and 21st centuries. Our topics include music, video games, television and films, animation, streaming and influencer culture, the fast food industry, fashion, sports, and more. Offered Yearly.

**Equivalent:** ELR 3220

**HIS 3240 Detroit Politics: Continuity and Change in City and Suburbs Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry Detroit area political systems and processes; historical, economic, and social influences on local politics. Traditions, changes, and future challenges in Detroit and metropolitan area. Offered Every Other Year.

**Equivalent:** PS 3250

**HIS 3250 The Family in History Cr. 3-4**

**Satisfies General Education Requirement:** Social Inquiry

Comparative survey emphasizing the transformation from traditional patterns of family life to family and kin in modern industrial society; students research their own family histories. Offered Every Other Year.

**HIS 3320 Twentieth Century Middle East Cr. 3**

The contemporary Middle East; emphasis on social and economic development. Investigation of issues that identify the region, such as oil, gender issues, fundamentalism, and regional conflicts. Offered Every Term.

**Equivalent:** NE 3040

**HIS 3330 Civilizations of the Nile Valley: Egypt and Nubia Cr. 4**

From Neolithic era to the seventh century of our era. Offered Every Other Year.

**HIS 3360 Black Workers in American History Cr. 4**

**Satisfies General Education Requirement:** Social Inquiry

Survey course. Slave and free workers during antebellum period; skill trades, sharecropping, menial labor, and coal mining during Reconstruction; labor struggles and job discrimination in the twentieth century. Offered Fall, Winter.

**Equivalent:** AFS 3360

**HIS 3431 Revolutionary Movements in Latin America Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry

This course examines revolutionary movements in twentieth-century Latin America with special emphasis on Central America, the Caribbean, and the Southern Cone. The course also explores the relationship between these movements, U.S. involvement in the region, and the Latin American diaspora. Offered Fall.

**Equivalent:** LAS 3431

**HIS 3440 American Medicine in the Twentieth Century Cr. 3**

Major historical benchmarks in the making of the medical system in the U.S., including developments in medicine and medical knowledge, as well as social and political factors that influenced their reception and implementation. Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** SOC 3440

**HIS 3445 History of the Future Cr. 3**

Explores how writers, politicians, historians, and ordinary people think about time—how we think about history and how we imagine the past and future in time travel stories, science fiction, scientific research, and public predictions about the future. It uses the history of technologies—and technological changes—as a means of anchoring our discussion of how writings (and visual media such as film and television) view past and future work, war and conflict, environmental change, reproduction, and human community. Offered Every Other Year.

**HIS 3490 History of Russia and Eurasia to 1917 Cr. 4**

Interaction of cultures, politics and societies of Russia and Eurasia to the Russian Revolution of 1917. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**HIS 3570 The Emerald Isle: A History of Ireland Cr. 3**

Ireland is a small place, but it has a great deal of history! This class will present a broad sweep of Irish history from the Iron Age down to the present day, with particular emphasis on the cultural mixing (and clashing) that has always characterized the place—Celts, Vikings, Anglo-Saxons, Highland Scots, and many other peoples have made Ireland their home through the centuries. We'll look at prominent events, personalities, battles, and milestones, but also at the day-to-day life of common Irishmen and women across the ages, as we consider what it means to be Irish and how that idea has changed over time. Offered Every Other Winter.

**HIS 3585 Science, Technology, and Society Cr. 3**

Introduction to the field of Science and Technology Studies; how conflicts about science and technology are generated and resolved; how broader societal institutions help shape, and are shaped by, science and technology. Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**HIS 3650 History of Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry History of Detroit from European contact to the present, with emphasis on the late-19th and 20th centuries. Offered Fall, Winter.

**Equivalent:** US 3650

**HIS 3870 History of Japanese Pop Culture Cr. 3**

Explores the history of Japanese pop culture and its global spread, with both an emphasis on historical influences, intended messages, and appeal in Japan and around the world, and examination of manga, anime, video games, sports, fashion, literature, music, film, and food. Offered Every Other Year.

**Equivalent:** ASN 3870

**HIS 3991 Directed Study: Salford - WSU Exchange Cr. 3-9**

Directed study at University of Salford, England. Offered Fall, Winter.

**Repeatable for 9 Credits**

**HIS 3995 Special Topics in History Cr. 1-4**

Specialized and topical studies in historical events, personalities and themes. Topics to be announced in Schedule of Classes . Offered Every Term.

**Repeatable for 8 Credits**

**HIS 3998 Topics in American History Cr. 1-4**

Topics to be announced in Schedule of Classes . Offered Intermittently.

**Repeatable for 8 Credits**

**HIS 4435 Beyond Human Nature: The New Sciences of Cultural Evolution Cr. 3**

Examines the history of debates in biology and the social sciences over the biological roots of human nature and culture. Traces the emergence of hybrid, interdisciplinary approaches since the 1970s employing the concept of cultural evolution, understood as distinct from genetic evolution. Considers how cultural evolution theory sheds new light on the historical transformation of egalitarian foraging societies into complex, hierarchical states after the development of agriculture, tracing their development to the present day. Offered Fall.

**HIS 4990 Directed Study Cr. 1-6**

Offered Every Term.

**Repeatable for 6 Credits**

**HIS 4993 History Communication Cr. 3**

This course examines the challenges associated with communicating about the past in today's media-saturated environment. Case studies include analysis of communication surrounding controversial historical issues such as slavery and race, to the examination of successful history communicators operating in various media. An important sub-theme focuses on best practices and ethics when it comes to communicating history to non-experts through emerging media. Students also learn how to "economize" the history communicator skillset for the workplace. Offered Fall.

**Equivalent:** ANT 4993

**HIS 4994 Digital History Seminar Cr. 3**

Explores both the opportunities and the challenges of digital history. Throughout the semester, students work in groups to construct a digital project for the Reuther Archive in which they will digitize sources and create content based on distinct parts of the Reuther's collection. The end goal is a digital exhibit that will both make these materials more accessible and help communicate their significance for the general public. Offered Every Other Fall.

**HIS 4997 Internship in Public History Cr. 3**

Professional experience in public history under the supervision of a public history practitioner and a departmental advisor. Offered Every Term.

**Prerequisites:** HIS 3000 with a minimum grade of C and HIS 4000-ZZZZ with a minimum grade of C

**HIS 5010 Colonial North America Cr. 4**

European expansion to North America, interaction among European, Native American, and African peoples, and imperial competition over the New World through the Seven Years' War. Offered Intermittently.

**HIS 5020 Revolutionary America Cr. 4**

Social, political, and cultural background to America's independence movement; development of American national identity, social relations, and early politics through the election of 1800. Offered Intermittently.

**HIS 5040 Civil War and Reconstruction: 1850-1877 Cr. 3**

Emphasis on the coming of the Civil War, the war's impact on American society, and the reconstruction of the United States after the war. Offered Every Other Year.

**HIS 5070 Contemporary American History: 1945 to the Present Cr. 4**

Social, political, intellectual, economic, diplomatic, and cultural trends in the United States since World War II. Offered Yearly.

**HIS 5130 American Foreign Relations Since 1933 Cr. 4**

United States involvement in the international system from the twenties to the present. Emphasis on World War II to Vietnam and the role of the United States in the Cold War and the Third World. Offered Every Other Year.

**HIS 5160 American Legal Culture to 1857 Cr. 4**

The emergence of distinctively Anglo-American legal cultures in the Atlantic basin and then in North America, from early exploration and settlement until the early stages of Civil War. Special attention is paid to law's ongoing relationship to state making, the shifting terrain of citizenship, the emergence of capitalism, and the construction within society of racial, gendered, and class distinctions. Not a prerequisite for HIS 5170. Offered Every Other Year.

**HIS 5170 American Legal Culture after 1857 Cr. 4**

The post-Civil War development of legal-cultural constructs as Americans industrialized, modernized, globalized, and centralized public life. Special attention will be paid to law's ongoing relationship to state-making, the shifting terrain of citizenship, the emergence of the modern welfare state, economic regulation and de-regulation, and the construction of racial, gendered, and class distinctions. Offered Every Other Year.



**HIS 5200 Women, Gender, and Sexuality in US History Cr. 3**

the history of women in the United States and the role of gender and sexuality in shaping women/qs and men/qs experience and identity. Offered Every Other Year.

**HIS 5205 Queer American History Cr. 3**

Queer American History will provide students with a comprehensive course on US History from a queer theoretical framework, introducing students to core concepts in queer/LGBTQ+ history, gender history and gender studies in the process. Topics addressed in this course include sexual and family politics, bodily autonomy, federal welfare and employment policy, public health, psychological approaches to identity, sexual orientation, gender identity and expression, intersectional identity, and gender and sexual performativity. Offered Yearly.

**HIS 5231 The Conquest in Latin America Cr. 3**

Varying perspectives on European conquests in Latin America. Offered Intermittently.

**Equivalent:** LAS 5231

**HIS 5240 Michigan History in Perspective Cr. 3**

Social, economic, environmental, and political history of Michigan from prehistory to the present. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**HIS 5251 History of Feminism Cr. 4**

An upper-division/graduate-level course on the main ideological, intellectual, and political sources and developments in the history of feminism in the United States. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Unranked Grad, Junior or Senior; enrollment is limited to Graduate or Undergraduate level students.

**HIS 5261 African American History and Memory Cr. 3**

An examination of the ways different groups and institutions remember and forget African American history. Each term the course will have a specific focus that will be advertised in advance. Offered Fall.

**Equivalent:** AFS 5261

**Repeatable for 6 Credits**

**HIS 5290 American Labor History Cr. 4**

Analysis of American workers and unions in the nineteenth and twentieth centuries. Offered Every Other Year.

**Equivalent:** ECO 5490

**HIS 5300 History of American Capitalism Cr. 4**

History and development of American capitalism from the colonial period through the 2008 financial crisis. Offered Every Other Year.

**HIS 5330 History of Ancient Greece Cr. 3**

Ancient Greek culture, emphasizing political events, social and economic institutions, and cultural achievements. Offered Every Other Year.

**HIS 5335 History of the Hellenistic Age Cr. 3**

The History of Greece and the Eastern Mediterranean world from Alexander the Great to the Roman conquest: 323 B.C. to 30 B.C. Offered Every Other Year.

**HIS 5340 History of Ancient Rome Cr. 3**

Institutional and cultural development. Offered Every Other Year.

**HIS 5345 Rome and the Barbarians Cr. 3**

The relationship between ancient Rome and the pre-state societies that existed beyond its frontiers from about 300 B.C.E to about 500 C.E. Offered Every Other Year.

**HIS 5360 The Early Middle Ages: 300-1000 Cr. 3**

Interaction of the Roman, Christian, and barbarian elements in the emergence of Europe as a cultural entity between the fourth and tenth centuries. Offered Every Other Year.

**HIS 5370 The High Middle Ages: 1000-1300 Cr. 3**

Economic, social, and cultural developments that transformed Western European civilization during the eleventh, twelfth and thirteenth centuries. Offered Every Other Year.

**HIS 5385 History of Christianity to the Reformation Cr. 3**

Survey of Christianity from Jesus to the Reformation. Balanced coverage of Christianity in Europe, Asia, and Africa. Offered Yearly.

**HIS 5407 The Scientific Revolution Cr. 3**

Rise of modern science; major changes in study of astronomy, medicine, physics, mathematics, and other sciences from 1500 to 1700. Offered Intermittently.

**HIS 5410 France's Global Revolutions Cr. 4**

Beginning at the end of the eighteenth century, France experienced a series of political and social revolutions, resulting in the overthrow of the monarchy and the long process of establishing a democratic form of government. At the same time, France's colonial settlements pursued a path of revolution, one eventually leading to the emancipation of Haiti. This course will examine the ideas, process and outcome of the Revolution that began in Paris and ended in Port-au-Prince, creating a global era of political change. Offered Every Other Year.

**HIS 5440 Twentieth Century Europe Cr. 4**

Total war and disillusionment, attempts to restore stability and security, totalitarianism as an answer, more war and reconstruction, a divided Europe, and the search for Europe's place in the world. Offered Every Other Year.

**HIS 5450 Europe, 1918-1939: Mass Politics and Culture in the Age of Hitler, Stalin, and Mussolini Cr. 4**

Social and cultural trends in modern European society; ideological struggles of interwar period. Topics include: impact of World War I; development of communism, fascism, Nazism; Freud and the liberal defense; existentialism; postwar disillusionment. Offered Yearly.

**HIS 5460 History of the Holocaust Cr. 4**

Holocaust as a tragic conjuncture of general European and Jewish history. Topics include: development of anti-Semitism in Europe and the rise of Nazism; European Jewry in the interwar period; the Third Reich's treatment of the "Jewish Question" in the 1930s; Jewish resistance; fate of the survivors; implications of the Holocaust for contemporary society. Offered Yearly.

**HIS 5470 Modern Germany Cr. 3-4**

The history of modern Germany against the background of its tradition and culture. Concentration on the Prussian-Austrian conflict, the emergence of German intellectual life, unification and modernization, and the crises and wars of the twentieth century. Offered Intermittently.

**HIS 5480 Nazi Germany Cr. 3-4**

Hitler and Nazi Germany. Topics include: impact of World War I, the Weimar Republic, the growth of the Nazi party, the seizure of power, internal and foreign policies, and the war experience. Offered Every Other Year.

**Equivalent:** HIS 7480

**HIS 5490 History of Russia and Eurasia to 1917 Cr. 4**

Interaction of cultures, politics and societies of Russia and Eurasia to the Russian Revolution of 1917. Offered Intermittently.

**HIS 5495 History of the Russian Revolution Cr. 3-4**

The Russian Revolution, including fall of tsarist Russia, reign of the Provisional Government, and establishment of power by the Communist Party. Offered Yearly.

**HIS 5500 The Soviet Union Cr. 4**

Bolshevik seizure of power, collectivization of agriculture and forced-draft industrialization, Nazi German invasion, Khrushchev and deStalinization, predominance of the new middle class, nationality problems, and problems of detente. Offered Every Other Year.

**HIS 5530 History of World War I and II: A Social and Political History of Two World Wars Cr. 4**

Provides an in-depth and truly global look at the history of both wars. Topics will include the political events leading up to the wars and their political aftermath, as well as their short- and long-term effects on societies. Offered Every Other Year.

**HIS 5535 History of Terrorism Cr. 3**

Examines terrorism from its beginnings until its most recent manifestations. It starts with a critical examination of the term terrorism itself, but the main focus of this course will not be on discussions about the concept and its various meanings, but rather on high profile instances of what is commonly referred to as terrorism. The course will take a transnational approach and engage in comparative history. Offered Every Other Year.

**HIS 5540 World Environmental History since 1900 Cr. 4**

This course examines the transformation of the relationship between human society and the natural environment in global context since 1900. Available for undergraduate credit only. Offered Fall.

**Equivalent:** GLS 5540

**HIS 5550 Britain 1485-1714 Cr. 4**

Impact of religious, political and social change on British people during sixteenth, seventeenth, and early eighteenth centuries. Offered Every Other Year.

**HIS 5555 Britain in the Age of Empire Cr. 4**

History of Britain and the rise of the British Empire, 1700-1800, focusing on political, economic, intellectual, and social developments. Special emphasis on shifting notions of what it meant to be "British" during the period. Offered Every Other Year.

**HIS 5556 History of Modern Britain Cr. 4**

Modern British history from 1815 to the present day: political, economic, intellectual, and social developments, in Britain itself and across the Empire. Offered Every Other Year.

**HIS 5585 Studies in Science, Technology, and Society Cr. 3**

Introduction to the field of Science and Technology Studies; how conflicts about science and technology are generated and resolved; how broader societal institutions help shape, and are shaped by, science and technology. Offered for graduate credit only. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 5665 Global Cities Cr. 3**

Social, political, economic, and cultural history of cities around the world, with an emphasis on the 19th and 20th centuries. Offered Intermittently.

**HIS 5670 Modern American Cities Cr. 3**

History of U.S. cities since World War II. Topics include suburbanization, deindustrialization, gentrification, and globalization. Offered Intermittently.

**Equivalent:** UP 5670

**HIS 5825 Readings in the History of Modern China Cr. 4**

From early 1600s to the present; political, economic, and social changes. Offered Every Other Year.

**Equivalent:** ASN 5825

**HIS 5855 Pre-Modern Japan Cr. 4**

Japanese history from its mythical origins to early nineteenth century; political, economic, social, cultural developments. Offered Every Other Year.

**Equivalent:** ASN 5855

**HIS 5865 Modern Japan Cr. 4**

Japanese history from the early nineteenth century to the present; emphasis on political, economic, and social developments. Offered Yearly.

**Equivalent:** ASN 5865

**HIS 5875 Gender in Modern East Asia Cr. 4**

History of gender in China, Japan, and Korea, with topics to include Confucianism, the state's role in gender construction, nationalism, imperialism, marriage, family, labor, sexuality, and feminism. Offered Every Other Year.

**Equivalent:** ASN 5875, GSW 5875

**HIS 5960 Globalization, Social History and Gender in the Arabian Gulf Cr. 3**

Social history of the Arabian Gulf (especially Bahrain, Qatar, and the UAE) in the age of globalization. Contemporary history with special emphasis on gender relations as an index of current social developments in the region. Offered Every Other Year.

**Equivalent:** NE 5000

**HIS 5991 Directed Study: Salford - WSU Exchange Cr. 3-9**

Directed study at University of Salford, England. Offered for undergraduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**HIS 5993 Writing Intensive Course in History Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Must be selected in conjunction with HIS 5996: Junior/Senior Research Seminar. For HIS 5996, students write a research paper of approximately twenty typed pages, including footnotes and a bibliography, and using primary sources. A C or higher on that paper is required to earn a Satisfactory for HIS 5993 and to fulfill the University General Education Writing Intensive requirement for the History major and History Honors major. Offered Fall, Winter.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students with a major in History or History Honors.

**HIS 5995 Honors Seminar Cr. 3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in History Honors; enrollment limited to students in a Bachelor of Arts degree.

**HIS 5996 Junior or Senior Research Seminar Cr. 3**

Examines what historians have written about a particular topic, theme, or period, along with what has shaped their interpretations. Students will also conduct independent research on a self-chosen aspect of that topic, theme, or period using primary sources and construct a paper based on that research. Offered for undergraduate credit only. Offered Intermittently.

**Prerequisites:** HIS 3000 with a minimum grade of C and HIS 3001-6999 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**HIS 6000 Studies in Comparative History Cr. 2-4**

Topics to be announced in Schedule of Classes. Offered Every Other Year.

**HIS 6010 Studies in American History Cr. 2-4**

Topics to be announced in Schedule of Classes. Offered Yearly.

**Repeatable for 9 Credits**

**HIS 6170 Studies in Ethnicity and Race in American Life Cr. 3-4**

Exploration of complicated relationship between ethnic and racial diversity and the making of America. Using historical, literary, and cultural readings and sources to examine key themes: Who was the "Other"? What is an "American"? Offered Every Other Year.

**Equivalent:** AFS 6170

**HIS 6440 Studies in American Medicine in the Twentieth Century Cr. 3**  
Major historical benchmarks in the making of the medical system in the U.S., including developments in medicine and medical knowledge, as well as social and political factors that influenced their reception and implementation. Offered for graduate credit only. Offered Winter.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 6780 Introduction to Records and Information Management Cr. 3**  
Management of information, including records creation, records inventory and appraisal, retention/disposition scheduling, filing systems, maintenance of inactive records, micrographics, vital records protection, and electronic impact on records management. Offered for graduate credit only. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Equivalent:** INF 6780

**HIS 6993 History Communication Cr. 3**  
This course examines the challenges associated with communicating about the past in today's media-saturated environment. Case studies include analysis of communication surrounding controversial historical issues such as slavery and race, to the examination of successful history communicators operating in various media. An important sub-theme focuses on best practices and ethics when it comes to communicating history to non-experts through emerging media. Students also learn how to "economize" the history communicator skillset for the workplace. Offered Every Other Fall.  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Equivalent:** ANT 6993

**HIS 7010 Readings in Colonial North America Cr. 4**  
Offered Intermittently.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7020 Readings in Revolutionary America Cr. 4**  
Offered Intermittently.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7040 Readings in the Civil War and Reconstruction: 1850-1877 Cr. 3**  
Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7070 Readings in Contemporary American History: 1945 to the Present Cr. 4**  
Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7130 Readings in American Foreign Relations Since 1933 Cr. 4**  
Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7160 Readings in American Legal Culture to 1857 Cr. 4**  
The emergence of distinctively Anglo-American legal cultures in the Atlantic basin and then in North America, from early exploration and settlement until the early stages of Civil War. Special attention is paid to law's ongoing relationship to state making, the shifting terrain of citizenship, the emergence of capitalism, and the construction within society of racial, gendered, and class distinctions. Not a prerequisite for HIS 7170. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**HIS 7170 Readings in American Legal Culture after 1857 Cr. 4**  
The post-Civil War development of legal-cultural constructs as Americans industrialized, modernized, globalized, and centralized public life. Special attention will be paid to law's ongoing relationship to state-making, the shifting terrain of citizenship, the emergence of the modern welfare state, economic regulation and de-regulation, and the construction of racial, gendered, and class distinctions. Offered Winter.  
**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**HIS 7200 Readings in Women, Gender, and Sexuality in US History Cr. 3**  
An advanced graduate course that explores the history of women in the United States and the role of gender and sexuality in shaping women's and men's experience and identity and the approaches to its study. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7231 The Conquest in Latin America Cr. 3**  
Varying perspectives on European conquests in Latin America. Offered Intermittently.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7251 History of Feminism Cr. 4**  
Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7261 African American History and Memory Cr. 3**  
An examination of the ways different groups and institutions remember and forget African American history. Each term the course will have a specific focus that will be advertised in advance. Offered Fall.  
**Restriction(s):** Enrollment is limited to Graduate level students.  
**Repeatable for 6 Credits**

**HIS 7290 Readings in American Labor History Cr. 4**  
Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7300 Readings in the History of American Capitalism Cr. 4**  
Advanced graduate course in the history and development of American capitalism from the colonial period through the 2008 financial crisis. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7330 Readings in the History of Ancient Greece Cr. 3**  
Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7335 Readings in the History of the Hellenistic Age Cr. 3**  
The History of Greece and the Eastern Mediterranean world from Alexander the Great to the Roman conquest: 323 B.C. to 30 B.C. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7340 Readings in the History of Ancient Rome Cr. 3**  
Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7345 Readings in Rome and the Barbarian Cr. 3**  
The relationship between ancient Rome and the pre-state societies that existed beyond its frontiers from about 300 B.C.E to about 500 C.E. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7360 Readings in the Early Middle Ages: 300-1000 Cr. 3**  
Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7370 Readings in the High Middle Ages: 1000-1300 Cr. 3**  
Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7385 Readings in the History of Christianity to the Reformation Cr. 3**  
Survey of Christianity from Jesus to the Reformation. Balanced coverage of Christianity in Europe, Asia, and Africa. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7407 Readings in The Scientific Revolution Cr. 3**  
Offered Intermittently.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7410 Readings in the French Revolution and Napoleon Cr. 4**

This course will explore France's complex revolutionary experience both in the metropole and in its eighteenth century colonial territories. It will compare the experience of the Revolution in France to that in Haiti to consider global impacts and experiences of political, social and cultural revolution. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7435 Beyond Human Nature: The New Sciences of Cultural Evolution Cr. 3**

Examines the history of debates in biology and the social sciences over the biological roots of human nature and culture. Traces the emergence of hybrid, interdisciplinary approaches since the 1970s employing the concept of cultural evolution, understood as distinct from genetic evolution. Considers how cultural evolution theory sheds new light on the historical transformation of egalitarian foraging societies into complex, hierarchical states after the development of agriculture, tracing their development to the present day. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7440 Readings in Twentieth Century Europe Cr. 4**

Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7450 Readings on Europe, 1918-1939: Mass Politics and Culture in the Age of Hitler, Stalin, and Mussolini Cr. 4**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7465 Readings in the History of the Holocaust Cr. 4**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7470 Readings in Modern Germany Cr. 3-4**

History of Twentieth-century Germany. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7480 Readings in Nazi Germany Cr. 3-4**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7495 Readings in the History of the Russian Revolution Cr. 3-4**

The Russian Revolution, including fall of tsarist Russia, reign of the Provisional Government, and establishment of power by the Communist Party. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7500 Readings in the Soviet Union Cr. 4**

Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7530 Readings in the History of World War I and II: A Social and Political History of Two World Wars Cr. 4**

Provides an in-depth and truly global look at the history of both wars. Topics will include the political events leading up to the wars and their political aftermath, as well as their short- and long-term effects on societies. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7535 Readings in the History of Terrorism Cr. 3**

Examines terrorism from its beginnings until its most recent manifestations. It starts with a critical examination of the term terrorism itself, but the main focus of this course will not be on discussions about the concept and its various meanings, but rather on high profile instances of what is commonly referred to as terrorism. The course will take a transnational approach and engage in comparative history. Offered Every Other Year.

**HIS 7540 Readings in World Environmental History Cr. 4**

This course examines the transformation of the relationship between human society and the natural environment in global context since 1900. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7550 Readings in Britain: 1485-1714 Cr. 4**

Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7555 Readings in Britain in the Age of Empire Cr. 4**

Readings in the history of Britain and the rise of the British Empire, 1700-1880, focusing on political, economic, intellectual, and social developments. Special emphasis on shifting notions of what it meant to be "British" during the period. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7556 Readings in the History of Modern Britain Cr. 4**

Readings in modern British history from 1815 to the present day: political, economic, intellectual, and social developments, in Britain itself and across the empire. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7665 Global Cities Cr. 3**

Social, political, economic, and cultural history of cities around the world, with an emphasis on the 19th and 20th centuries. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7670 Modern American Cities Cr. 3**

History of U.S. cities since World War II. Topics include suburbanization, deindustrialization, gentrification, and globalization. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7685 Practicum: Archives Cr. 3**

On-site experience in archival center under direction of professional librarian or archivist and supervision of faculty member. Theory and competencies relevant to the environment. Offered Every Term.

**Prerequisite:** INF 6010 with a minimum grade of C and INF 6080 with a minimum grade of C and INF 6120 with a minimum grade of C and INF 6210 with a minimum grade of C and INF 7040 with a minimum grade of C and INF 7710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 7970

**HIS 7745 Archives and Libraries in the Digital World Cr. 3**

Overview of electronic tools and the role of digital process in libraries and archives. Offered Spring/Summer.

**Prerequisite:** INF 6010 with a minimum grade of C or INF 7710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 7740

**HIS 7810 Introduction to Archival and Library Conservation Cr. 3**

Fundamentals of archival and library conservation problems and methods essential for effective preservation management of paper and associated materials. Offered Spring/Summer.

**Prerequisite:** INF 6010 with a minimum grade of C or INF 7710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 7750



**HIS 7820 Description and Access for Archives Cr. 3**

Investigation of description of archival materials emphasizing the electronic technologies and standard practices. Offered Yearly.

**Prerequisites:** INF 7710 with a minimum grade of C (may be taken concurrently) or HIS 7840 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 7780

**HIS 7830 Methods and Research in History Cr. 3**

Methods and tools of research and documentation. Use of aids and guides. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7832 History Practicum Cr. 3**

Enables career exploration for graduate students, facilitates professional development, and introduces students to the basics of teaching history. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7835 Public History Cr. 3**

Theory and practice of public history, including research and interpretation for popular audiences. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7840 Archival Administration Cr. 3**

Basic training in archival methods. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 7710

**HIS 7855 Memory and History Cr. 3**

Introduction to the study of collective and public memory in history; interdisciplinary theories and approaches; case studies. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7860 Oral History: A Methodology for Research Cr. 3**

Techniques of gathering data from individuals for use in research, classroom teaching, historical, cultural or other contexts. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 7770

**HIS 7880 Cultural Heritage Institutions: Management and Leadership Cr. 3**

The operation of public and private historical agencies, archives and museums. Determination of agency priorities, problems of staffing and finance, governmental regulations, community relations, and professional ethics. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 7885

**HIS 7890 Administration of Audio Visual Collections Cr. 3**

Basic course in the fundamentals of administering a visual collection: evaluation, organization, and control of visual collections in archives, librarians, historical agencies, and museums. Offered Winter.

**Prerequisite:** HIS 7840 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 7730

**HIS 7960 Readings in Globalization, Social History and Gender in the Arabian Gulf Cr. 3**

Social history of the Arabian Gulf (especially Bahrain, Qatar, and the UAE) in the age of globalization. Contemporary history with special emphasis on gender relations as an index of current social developments in the region. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7990 Directed Study Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**HIS 7994 Digital History Seminar Cr. 3**

Explores both the opportunities and the challenges of digital history. Throughout the semester, students work in groups to construct a digital project for the Reuther Archive in which they will digitize sources and create content based on distinct parts of the Reuther's collection. The end goal is a digital exhibit that will both make these materials more accessible and help communicate their significance for the general public. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 7998 Internship in Public History Cr. 1-3**

Professional experience in public history under the supervision of a public history practitioner and departmental advisor. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**HIS 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**HIS 8010 Seminar in Early American History Cr. 3**

From first contact between Europeans and Native Americans through the American Revolution. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**HIS 8030 Seminar in Modern American History Cr. 3**

Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**HIS 8050 Seminar in Legal History Cr. 3**

Research seminar in legal history. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**Equivalent:** LEX 8386

**Repeatable for 6 Credits**

**HIS 8060 Seminar in North American Labor History Cr. 3**

Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**HIS 8150 Seminar in the History of Gender, Women and Sexuality Cr. 3**

Research seminar in the History of Gender, Women, and Sexuality. Topics vary by Term. Offered Yearly.

**Prerequisites:** HIS 7830 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** GSW 8150

**Repeatable for 6 Credits**

**HIS 8235 Seminar in Early Modern European History Cr. 3**

Historiographical, methodological and epistemological issues in doing research in early modern European history. Readings, discussions, focused research. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**HIS 8240 Seminar in Modern European History Cr. 3**

Offered Every Other Year.

**Prerequisite:** HIS 7830 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**HIS 8310 Seminar in World History Cr. 3**

Concepts, methodologies and theories of world history; readings, discussions, and written critiques of various schools in the field. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**HIS 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**HIS 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**HIS 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** HIS 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** HIS 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** HIS 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**HIS 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## HON - Honors

**HON 1000 The City: Changing Detroit Cr. 4**

**Satisfies General Education Requirement:** Civic Literacy, Diversity Equity Incl Inquiry, Social Sciences

Honors 1000 is the first half of the Honors Foundation Sequence. The course explores the history and development of the city of Detroit, including the challenges of de-industrialization and segregation, and guides students through the steps of civic engagement including how to identify and specify social problems, formulate workable solutions and advocate effectively for their implementation. Offered Fall.

**HON 1110 Passport to Success Cr. 1**

**Satisfies General Education Requirement:** Wayne Experience

Passport to Success is a participatory-learning course designed to prepare students for life in college and life in Detroit designed to use the personal exploration as a frame through which students develop (or improve) essential college-level skills. Offered Intermittently.

**HON 2000 Foundation Seminar Cr. 3**

**Satisfies General Education Requirement:** American Society Institution, Cultural Inquiry, Social Inquiry

Honors foundation seminars are rigorous small, seminar-style classes of incoming Honors students designed to help them deepen their understanding of scholarly inquiry and important issues with relevance to the Detroit metropolitan area. The object of the course is to prepare students to function well in a college setting and in the broader world, using the tools of scholarship to explore important questions of everyday life. Offered Yearly.

**HON 3000 Field Learning Cr. 0**

Required for all students graduating with University Honors. Students are involved in community-based education and promotion of civic engagement. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**HON 4200 Seminar in Philosophy and Letters Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Analysis of meanings given to human experience through study of philosophy or letters. Offered Yearly.

**Repeatable for 9 Credits**

**HON 4220 Seminar in Life Science Cr. 3**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry

Analysis of aspects, methods, and important issues in various areas of the life sciences. Offered Yearly.

**Repeatable for 9 Credits**

**HON 4230 Seminar in Physical Science Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

Analysis of modern theory and data, implications and possibilities in the physical sciences. Offered Yearly.

**Repeatable for 9 Credits**

**HON 4250 Seminar: Global Perspectives on Historical Studies Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Historical Studies

Studies of periods of history in which there has been major transition or change. Offered Yearly.

**Repeatable for 9 Credits**

**HON 4260 Seminar in Foreign Culture Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Humanistic or social science investigation of peoples and institutions in other cultures. Offered Yearly.

**Repeatable for 9 Credits**

**HON 4280 General Honors Seminar Cr. 3**

In-depth exploration of important concepts and approaches in liberal studies. Topics to be announced in Schedule of Classes. Offered Yearly.

**Repeatable for 9 Credits**

**HON 4930 Detroit Fellows Tutoring Project Cr. 2-4**

Community-based service-learning project designed to improve the reading skills of elementary school students through one-on-one mentoring. Monthly seminar sessions to discuss progress and techniques required. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 16 Credits**

**HON 4940 Service-Learning Internship Cr. 1-3**

Service-learning project with a local community partner. Collateral reading, written work, arranged conferences with faculty supervisor. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**HON 4950 Wayne Med-Direct Seminar Cr. 1**

Explorations of various dimensions of health care through seminars with healthcare experts and leaders in the field, group/individual research projects, and experiential learning. This course is intended for students in the Wayne Med-Direct program. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 8 Credits**

**HON 4970 BStart Seminar Cr. 1**

Training of future leaders in business by emphasizing mentoring and research opportunities with business school faculty. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 8 Credits**

**HON 4980 University Scholars Seminar Cr. 1**

International learning and experiences of designated scholarship students in the Honors College. Reflection and presentation on specific topics related to the local, regional, national and international landscapes. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 8 Credits**

**HON 4990 Honors Directed Study Cr. 1-4**

Offered Yearly.

**Repeatable for 8 Credits**

**HON 4998 University Honors Thesis Cr. 3-6**

Independent research project, essay, or creative project. Students are responsible for identifying their own research project and full-time faculty member. At the end of the first semester a deferred grade of Y will be assigned, with a grade change processed at the completion of the thesis in a subsequent semester. Offered Every Term.

## HPE - Health and Physical Education

**HPE 6120 Sports I Cr. 3**

This course is designed for students to learn sports across three different categories: tag, new/wall, and invasion games. It will include skill/techniques, instructional strategies, basic concepts, as well as planning for effective teaching in the sports. Offered Every Other Year.

**HPE 6130 Sports II Cr. 3**

This course is designed for students to learn sports across two different categories: target, fielding/striking games. It will include skill/techniques, instructional strategies, basic concepts, as well as planning for effective teaching in the sports. Offered Every Other Year.

**HPE 6140 Fitness and Dance Cr. 3**

Introduces students to health and skill-related fitness concepts as well as different genres of dance. Additionally, skill competencies will be sought in both health-related fitness and dance. Students will work towards mastery of skills as well as how to begin instructing children, youth, and adolescents, in group fitness and dance environments. Offered Winter.

**HPE 6150 Adventure and Outdoor Pursuits Cr. 3**

Provides an introduction to instructing youth in adventure activities and outdoor pursuits. Includes basic principles and concepts of adventure education as well as appropriate instructional strategies. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.

**HPE 6160 Aquatic Leadership Cr. 3**

This course is designed to prepare students for leadership responsibilities in the area of aquatics. It will emphasize a broad range of aquatic experiences and teaching methodologies and will include swimming and rescue skills necessary to complete certification as an American Red Cross Water Safety Instructor and Lifeguard. It will also include program development, risk management, and staff management. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**HPE 6200 Management and Instruction in Health and Physical Education Cr. 3**

This course is the study of effective teaching and instructional practices in health and physical education. It will include the study of the learning process, factors that influence the learning process, effective teaching skills, effective task presentation and content development, and management of and motivation in the learning environment. Students will also investigate teaching styles that lead to effective instruction. Offered Fall.

**HPE 6210 Curriculum and Instruction in Health and Physical Education Cr. 3**

The purpose of this course is to introduce the student to a variety of curriculum models in health and physical education and to provide the student with experience in long-range planning, developing, and evaluating health and physical education curriculum. Emphasis will be on planning lessons that are standards-based, developmentally-appropriate, and progressive in nature. Candidates will evaluate completed curriculums using an existing curriculum evaluation tool. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

**HPE 6220 Technology in Health and Physical Education Cr. 3**

Current best practices for the use of technology in health and physical education and physical activity programming. Course includes how to use technology including apps, mobile devices and online assessment tools to implement instruction and evaluation. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**HPE 6230 Socio-cultural Issues in Physical Activity Cr. 3**

Contemporary and historical perspective on socio-cultural and philosophical issues that influence American youth and instruction in a physical activity setting, including race, gender, sexuality, obesity, and urbanization. Offered Fall.

**HPE 6400 Physical Activity in Pediatric Disabilities Cr. 3**

This course is designed to discuss historical and contemporary issues in adapted physical activity including evidence-based interventions; techniques for adapting the environmental conditions; and designing, implementing, and evaluating individualized programs for individuals with disabilities. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

**Repeatable for 6 Credits**

**HPE 6410 Teaching Adapted Physical Activity and Sport Cr. 3**

Teaching and coaching of developmental, recreational, and competitive sports across school and community-based settings. Includes assessment, teaching, conditioning, and coaching strategies for individuals with disabilities as well as administrative/management strategies. Offered Winter.

**Repeatable for 6 Credits**

**HPE 6420 Teaching Aquatics to Special Populations Cr. 3**

Developing and implementing swimming and water-related activities designed to meet the needs of special populations including water orientation, swim instruction, fitness instruction, facilities and equipment considerations, and research on adapted aquatics. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.

**Repeatable for 6 Credits**

**HPE 6430 Physical Activity Assessment in Special Populations Cr. 3**

Appropriate and accurate selection, administration and interpretation of assessment results for adapted physical education purposes. Includes use of assessment results to design effective adapted physical education programs and participate in the IEP process. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.

**Repeatable for 6 Credits**

**HPE 6440 Leadership Training and Practicum in Adapted Physical Education Cr. 3**

Directed fieldwork placement in teaching physical education to students with special needs in schools. Required for State of Michigan Approval as a Teacher of Students Requiring Adapted Physical Education (SP Endorsement). Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Repeatable for 6 Credits**

**HPE 6510 Elementary Health and Physical Education Methods Cr. 3**

Developmental approach to teaching elementary physical education and health in the schools. Beginning movement concepts, Michigan Health Education Model, and fundamental motor skills that are developmentally appropriate for children to participate in games, gymnastics, dance, and fitness activities. Curriculum design and implementation of activities in the practicum application. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

**HPE 6520 Secondary Physical Education Methods Cr. 3**

The purpose of the course is to prepare students for secondary instruction of physical education and includes authentic classroom experience, planning for instruction in physical education with emphasis on unit and lesson planning, assessment, and developmental curriculum planning. It is meant to help future secondary physical education teachers know what to teach in the physical education classroom and how to teach it. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**HPE 6600 Student Teaching and Seminar Cr. 10**

Prepares students for initial teaching certification through K-12 student teaching experience and seminars. The regular seminar will cover a variety of issues and topics related to teaching methods and becoming an effective teacher. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

## IBS - Interdisciplinary Biomedical Sciences

**IBS 7015 Interdisciplinary Cell and Molecular Biology Cr. 6**

The fundamental biochemistry, molecular biology, and function of eukaryotic cells. Includes study of the structure and purpose of the basic components of eukaryotic cells; how eukaryotic cells obtain and utilize energy, process information, and replicate or self-destruct; and examples of how specific cell types contribute to multicellular biological processes and systems in normal and disease states. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree; enrollment limited to students in the School of Medicine.

**IBS 7030 Functional Genomics and Systems Biology Cr. 2**

Exploration of several new technologies for determining gene function on a genome-wide scale and for integrating information into a systems-level view of biological processes. Offered Winter.

**Prerequisite:** IBS 7015 with a minimum grade of C or MGG 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree; enrollment limited to students in the School of Medicine.

**Equivalent:** MGG 7030

**IBS 7050 Molecular Neuropsychopharmacology Cr. 2**

Sensory, motor, and integration of nervous systems, including anatomic and cellular organization, systemic and cellular-molecular functions, and diseases. Offered Winter.

**Prerequisites:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree; enrollment limited to students in the School of Medicine.

**IBS 7090 Biomedical Immunology Cr. 2**

Cellular-molecular and systemic functions, and diseases of the immune system. Offered Winter.

**Prerequisites:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree; enrollment limited to students in the School of Medicine.

**IBS 7100 Biomedical Neuropharmacology Cr. 2**

General principles, including cellular and molecular basis of drug action with special emphasis on neuronal systems. Offered Winter.

**Prerequisites:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate or Medical level students; enrollment limited to students in the School of Medicine.

**IBS 7130 Systems Neuroscience: Structure and Function of the Nervous System Cr. 2**

Basic principles of neural science through examination of structure and function of the major physiological systems within the brain and spinal cord. Offered Winter.

**Prerequisites:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate or Medical level students; enrollment limited to students in the School of Medicine.

**IBS 7140 Foundations of Data Science Cr. 3**

Introduction to basic concepts of linear algebra and their application to data analysis. MATLAB and PYTHON programs are introduced and employed as tools for practical implementation of computational methods. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BMB 7140

**IBS 7320 Protein Structure and Function Cr. 3**

Structure, function, and design of proteins: architecture, function, regulation, assembly and evolution of proteins and protein complexes; theory and techniques of kinetic analysis; newer techniques of protein design and engineering. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BMB 7320

**IBS 7330 Advanced Molecular Biology Cr. 2**

Modern topics in biochemistry, including nucleic acid dynamics, genomic structure, DNA replication and repair, transcription, RNA processing, translation and protein synthesis. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IBS 7690 Principles and Techniques of Reproductive Biology Cr. 3**

Principles and techniques in reproduction including endocrinology, gametogenesis, fertilization, implantation, embryogenesis, stem cell determination, pregnancy and parturition. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PSL 7690



# IE - Industrial Engineering

## IE 3120 Work Design Cr. 3

Role of the human as an element of the work environment. Traditional issues of work standards, productivity analysis and occupational safety are introduced. Examination of functional and organizational role of the worker; impact of emerging computer-based technologies on work design and implementation strategies is discussed. Offered Fall.

**Prerequisite:** BE 2100 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

## IE 3450 Manufacturing Processes I Cr. 3

A study of the field of manufacturing processes from a mechanical engineering design standpoint. Topics include: processing of metals, polymers and ceramics, and computer-aided manufacturing. Offered Fall, Winter.

**Prerequisites:** BE 1500 with a minimum grade of C-, ME 2420 with a minimum grade of C-, BE 1300 with a minimum grade of C-, and BE 1310 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$25

**Equivalent:** ME 3450

## IE 4250 Data Science and Analysis Cr. 3

This course is designed to explore the must-knows of data analysis and data science for engineering students. As data analysis focuses on processing and performing statistical analysis to solve problems for well-defined questions, data science complements it by fixating on unearthing answers to the questions that are not well-defined. This course not only covers how to perform descriptive statistics, design of experiment, and hypothesis testing for drawing conclusions, but also introduces how to apply machine learning and predictive analytics to extract critical information from the datasets. This course equips students with methods which are the key tools that enable engineers with descriptive as well as predictive methods to identify and deal with viability of measurements in stochastic environments. Offered Winter.

**Prerequisite:** BE 2100 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

## IE 4260 Principles of Quality Control Cr. 3

Statistical quality control including process capability, control charts, and acceptance sampling procedures. Procedures for measurement of dimensional tolerance are introduced. Computer-based data collection and analysis. Offered Yearly.

**Prerequisite:** BE 2100 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

## IE 4310 Production Control Cr. 3

**Satisfies General Education Requirement:** Writing Intensive Competency  
The design of production planning and control systems. Materials management, forecasting, planning, scheduling of production systems, the planning and scheduling for large scale projects and introduction to the design of computerized materials management systems. Applications of operations research models to production control problems. Offered Winter.

**Prerequisite:** ENG 3050 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

## IE 4330 Facilities Design Cr. 3

Design of manufacturing, warehouse and material handling facilities. Use of analytic and computer-aided methods in the facilities design process. Offered Winter.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

## IE 4355 Product Engineering Cr. 3

Current principles and processes of product engineering. Use of integrated product engineering processes and methods. Offered Winter.

**Prerequisite:** BE 2100 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

## IE 4420 Systems Simulation Cr. 3

Systems modeling and discrete event simulation. Methodology applied to analysis and design of a broad range of systems including both production and service systems. Computer assignments and a term project are required. Offered Yearly.

**Prerequisites:** BE 1200 with a minimum grade of C-, BE 2100 with a minimum grade of C-, and (BE 1500 with a minimum grade of C- or BE 1600 with a minimum grade of C-)

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

## IE 4560 Operations Research Cr. 3

An introduction to the philosophy of operations research. Formulation of linear programming models and their solution. Duality and sensitivity analysis. The transportation model. Introduction to probabilistic modeling and applications of queueing models. Offered Fall.

**Prerequisite:** BE 2100 with a minimum grade of C- and MAT 2150 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

## IE 4710 Labor Relations in Manufacturing Cr. 3

Knowledge and skills in administering labor agreements. Technical elective for Production Leadership Management Program (PMLP) students. Offered Winter.

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment is limited to Undergraduate level students.

**IE 4800 Engineering Design I: Project Management Cr. 2**

Project selection, team building, and methodological preparation required for Engineering Design Project II. Offered Every Term.

**Prerequisites:** IE 3120 with a minimum grade of C-, IE 4250 with a minimum grade of C-, IE 4850 with a minimum grade of C-, and 2 of (IE 4420 with a minimum grade of C- (may be taken concurrently), IE 4330 with a minimum grade of C- (may be taken concurrently), or IE 4560 with a minimum grade of C- (may be taken concurrently))

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**IE 4850 Engineering Economy Cr. 3**

Economic analysis of engineering projects. Selection of appropriate financial parameters (e.g., interest rates) and methods of analysis for depreciation, tax considerations, and use of accounting data for comparison among investment options. Offered Fall.

**Prerequisite:** BE 2100 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Equivalent:** CE 4850

**IE 4880 Engineering Design II Cr. 2**

Intensive design experience defined and executed by the student. Requires synthesis and application of skills and knowledge gained in the program. Offered Winter, Spring/Summer.

**Prerequisites:** IE 4260 with a minimum grade of C- (may be taken concurrently), IE 4310 with a minimum grade of C- (may be taken concurrently), IE 4330 with a minimum grade of C- (may be taken concurrently), IE 4420 with a minimum grade of C- (may be taken concurrently), IE 4560 with a minimum grade of C- (may be taken concurrently), and IE 4800 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**IE 4990 Directed Study Cr. 1-4**

Supervised study and instruction in a field selected by the student. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Computer Science, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Repeatable for 4 Credits**

**IE 4991 Undergraduate Internship Cr. 1-2**

The objective is to prepare students for roles in industrial and systems engineering by providing students with the opportunity to gain professional experience while engaging in rigorous classroom academics. Students who select this course can only perform work relevant to industrial engineering, therefore, some jobs may not be eligible for internship credit; the work must support the BSIE curriculum. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**Repeatable for 3 Credits**

**IE 5490 Creative Problem Solving in Design and Manufacturing Cr. 3**

Concepts of laws of natural development of engineering systems. Algorithm for inventive (creative) problem-solving (AIPS-85). Creative use of physical and geometrical effects in design of mechanical and manufacturing systems. Concepts of strength, stiffness, vibratory effects, reliability in mechanical design. Offered Yearly.

**Equivalent:** ME 5470, SYE 5470

**IE 5995 Special Topics in Industrial Engineering Cr. 1-4**

Special subject matter in industrial engineering. Topics to be announced in Schedule of Classes. Offered Intermittently.

**IE 6000 Digital Automation Cr. 3**

Fundamentals of digital control and logic; integration and automation solution technologies (barcode systems, vision systems, etc.); data acquisition. Offered Fall.

**IE 6005 Automotive Engineering Statistics Cr. 3**

Introduction to probability and statistics for engineering students: analysis of random component in problems, understanding probability and statistics, opportunities for application, analysis of data using statistical software. Offered for graduate credit only. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**IE 6010 IoT and Edge AI Programming Cr. 3**

Learn sensor programming on an embedded device; use Wi-Fi, Bluetooth and MQTT to implement data streaming, remote control, and multi-device networking; explore the IoT data processing life cycle which includes capturing, cloud storage, and data analysis; develop and deploy machine learning models for use in mobile and edge computing environments. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6020 Digital Twinning and Immersive Modeling Cr. 3**

This course presents an introduction to virtual and augmented reality (VR and AR) technologies, with an emphasis on designing and developing interactive virtual and augmented reality experiences. Learn the strengths and limitations of VR/AR technology and the need for consideration of human factors and cognitive issues. Beyond immersive technology, the course also covers Digital Twins, as a response to the increasing digitalization of product development, production, and products themselves. Offered Every Other Fall.

**IE 6040 Simulation in Robotics Using ROS Cr. 3**

Robotic systems are increasingly used for various tasks and applications. The applications include transportation safety, search and rescue, space exploration, and military operations, to name a few. ROS, the Robot Operating System, is an open-source framework used to direct the robots to perform tasks. ROS provides a software infrastructure for people who are interested in building and using robots. This framework is commonly used by people to share and collaborate on code and common ideas. Offered Winter.

**IE 6125 Human Factors Engineering Cr. 3**

Current methods and topics in engineering research on human capabilities and limitations as a system component. Advanced analysis, modeling and design of human-centered systems. Offered Winter.

**IE 6210 Applied Engineering Statistics Cr. 3**

An applied statistics course for students in engineering that will build upon introductory statistical knowledge. Students will learn to identify the phenomena they would like to study, design, and run experiments; collect data and analyze it by applying statistical tools such as multiple regression, ANOVA, and non-parametric statistical tools; and report on the statistical results and their implication to engineering phenomena. No credit for AGRADE undergraduates after taking IE 4250. Offered Fall, Winter.

**IE 6220 Value Engineering Cr. 3**

Resource management; systematic approach to solving problems and making decisions; forcing latent capabilities to be applied to challenging assumptions; application of unbiased logic techniques to produce superior results. Offered Spring/Summer.

**IE 6240 Quality Management Systems Cr. 3**

Design of quality management systems. Topics include: QFD, quality planning, business operating systems, TQM, standards, and auditing. Quality management tools such as PDCA and root cause analysis. Offered Winter.

**IE 6255 Quality Engineering Cr. 3**

Quality Engineering means achieving quality by design, so this course covers several important methods in supporting engineering design activities. These methods include quality function deployment, axiomatic design, Theory of Inventive Problem Solving (TRIZ), Taguchi method (robust design) and tolerance design. Offered Fall, Winter.

**Prerequisite:** IE 6210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6270 Engineering Experimental Design Cr. 3**

The design of engineering experiments for manufacturing process analysis, human factors experimentation, societal systems analysis and life testing; basic experimental design models, blocking, factorial experiments, nested designs, covariance analysis, response surface analysis, estimation of effects. Offered Fall.

**Prerequisite:** IE 6210 with a minimum grade of C or IE 4250 with a minimum grade of C-

**IE 6275 Reliability Estimation Cr. 3**

The course is designed for graduate students specializing in quality engineering. These individuals play a significant role in designing and developing new products and manufacturing systems and processes. Topics include: reliability measures, failure distributions, reliability block diagrams, reliability estimation using exponential and Weibull distributions, sequential life testing, test planning, and Bayesian reliability. Offered Fall.

**Prerequisite:** IE 4250 with a minimum grade of C- or IE 6210 with a minimum grade of C

**IE 6290 Nonparametric Statistics Cr. 3**

The focus is on standard nonparametric procedures useful for the analysis of experimental data. One-sample, two-sample, matched pairs, one-way layout, and two-way layout procedures are covered. Tests for lack of independence, tests of randomness, and goodness-of-fit tests are also covered. Applications are emphasized, but theory is not completely neglected. State-of-the-art software for exact nonparametric inferences is to be used throughout the semester. Offered Spring/Summer.

**Prerequisite:** IE 6210 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6310 Lean Operations and Manufacturing Cr. 3**

Fundamental theories and concepts in lean manufacturing, six-sigma, mistake proofing, problem solving, process management. Students develop competency in identifying causes and sources of waste in manufacturing, industrial, and business operations. Offered Fall, Winter.

**Prerequisite:** IE 4250 with a minimum grade of C- or IE 6210 with a minimum grade of C

**IE 6315 Production and Service Systems Cr. 3**

Fundamental theories and concepts in the design and operation of production systems for manufacturing and service organizations. Topics may include: Inventory Management, Production Planning (MRP, JIT, ERP), Factory Physics, Production Control, Introduction to Supply Chain Management Offered Winter.

**Prerequisite:** IE 6210 with a minimum grade of C

**IE 6325 Supply Chain Management Cr. 3**

Supply chain management and logistics is unique and, to some degree, represents a paradox because it is concerned with one of the oldest and also the most newly discovered activities of business. Supply chain system activities - communication, inventory management, warehousing, transportation, facility location, and production - have been performed since the start of commercial activity. It is difficult to visualize any product that could reach a customer without logistical support. Yet, it is only over the last decade that firms have started focusing on logistics and supply chain management as a source of competitive advantage. Logistics and supply chain management today represents a great challenge as well as a tremendous opportunity for most firms. Another term that has appeared in business jargon recently is demand chain. From our perspective, we will use the phrases logistics management, supply chain management, and demand chain management interchangeably. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6405 Integrated Product Development Cr. 3**

Product development process: product architectures, concurrent engineering. Integration of marketing, design, and manufacturing functions for product development. How such processes are designed to account for various manufacturing and other business constraints to ensure that customer needs are met. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Equivalent:** AET 5600, EVE 5600

**IE 6420 CAD/CAM Cr. 3**

This course aims to provide students with an in-depth introduction to CAD/CAM and computer-aided process planning. Students will have the scientific foundations for understanding the issues and technologies of modern CAD/CAM and related design and modeling activities. The course covers the major topics of CAD/CAM by learning fundamental theory and modern CAD/CAM software. It will provide an integrated view of engineering so that students may gain a complete view of product design, modeling, and manufacturing. Offered Winter.

**IE 6422 Flexible Manufacturing Systems Cr. 3**

Flexible manufacturing systems are a highly automated group technology machine cell, consisting of a group of processing stations, interconnected by an automated material handling and storage system, and controlled by an integrated computer system. The analysis and design of flexible manufacturing systems will be covered, including: FMS control and communication architecture, FMS material handling architecture, flexibility analysis, and computer-integrated manufacturing (CIM). Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6425 Product Lifecycle Management and Sustainable Design Cr. 3**

The aim of this class is to familiarize the current principles, practices, and applications of Product Lifecycle Management (PLM). The sustainable design of products and processes, as well as the early consideration of constraints and factors, are important in the successful development of competitive products. PLM is an integrated, information driven approach to all aspects of a products life from its design inception, through its manufacture, deployment and maintenance, culminating in its removal from service and final disposal. PLM technology plays a critical role in most modern industries including aerospace, automobile, and medical. Effective integration of PLM technologies into the product development process can put the industry at a competitive advantage to deliver innovative products. Offered Winter.

**IE 6430 Computer Simulation Methods Cr. 3**

The application of discrete, continuous and combined simulation methods to the solution of a variety of production and service systems problems. Computer simulation and a term project involving an application are required. No credit after IE 4420. Offered Fall, Winter.



**IE 6435 Fundamentals of Sustainable Manufacturing Cr. 3**

Sustainable manufacturing, as defined by the U.S.A. Department of Commerce, is “the creation of manufactured products that use processes that minimize negative environmental impacts, conserve energy and natural resources, are safe for employees, communities, and consumers and are economically sound.” This course is designed to introduce the fundamental concepts of sustainable manufacturing. While the focus will be on sustainable manufacturing, topics will also include connections of sustainable design, environmental sciences, and the social sciences with sustainable manufacturing. Offered Every Other Fall.

**IE 6442 Facilities Design and Materials Flow Cr. 3**

Presents the fundamental concepts, theory and procedures required for effective facilities design and planning. Includes models for determining plant size and time phasing; design of manufacturing, warehouse and material handling facilities; and use of analytic and computer-aided methods in the facilities design process. No credit after IE 4330. Offered Fall, Winter.

**IE 6470 Stochastic System Modeling: Queuing and Simulation Cr. 2**

Description of queuing systems; analytical solutions; discrete events systems; modeling framework and object models; terminating and non-terminating systems; statistical analysis; case studies. Offered Yearly.

**IE 6510 Information Systems for the Manufacturing Enterprise Cr. 3**

Information systems are used to make organizations leaner and more integrated across the entire Manufacturing Enterprise. A suite of information systems is to provide an environment that allows an engineer to consider both product and manufacturing requirements throughout the design, development, manufacturing cycle, resulting in a single unified concurrent engineering process, an integral knowledge management process, and rapid response to market changes. This course will teach information technologies and applications in the manufacturing industry. Offered Fall.

**IE 6520 Negotiating in an IE Environment Cr. 3**

Analytic and interpersonal skills needed to negotiate effectively. Students integrate the analytic and interpersonal skills necessary to be an effective negotiator in a rapidly-changing technical environment. Offered for graduate credit only. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6530 Global Automotive Marketing Strategy Cr. 3**

Over the course of the term, we will examine the various steps necessary in order to develop, design, and analyze a marketing plan. We will cover strategic issues of specific interest to the automotive industry. Offered Every Other Spr/Sum.

**Restriction(s):** Enrollment limited to students in the MS in Engineering Management program.

**IE 6560 Deterministic Optimization Cr. 3**

The primary goals are to develop the ability to formulate fairly complex optimization problems, provide an appreciation of the main classes of problems that are practically solvable, describe the available solution methods, and build an understanding of the qualitative properties of the solutions they provide. The class participant will develop skills in recognizing and formulating deterministic optimization models and gain an appreciation for the role of sensitivity analysis in analyzing a problem. Covers methods for quantifying the impact of specific constraints on the overall performance of the system. Application areas include production scheduling, product mix planning, manpower planning, routing and scheduling, financial planning, and prototype builds. Offered Fall, Winter.

**IE 6570 Engineering Leadership and Management Cr. 3**

This course is intended for students in the off-campus Engineering Management Master's Program. It provides students with a global perspective on engineering leadership. It investigates leadership at multiple levels - individual, organizational and societal - and it explores multiple contexts including different organizational cultures, countries and virtual teamwork. Topics covered include the leader's role in developing and changing organizational culture and leadership differences across cultures. Participants explore issues surrounding global leadership competencies such as leading virtually, the new ways of work, leading innovation, workforce diversity and ethics. They also assess their own cultural intelligence. Offered Yearly.

**IE 6580 Engineering Financial Practice Cr. 3**

Combines the central concepts of engineering financial and engineering managerial economics. Demonstrates, from an engineering financial perspective, how engineering decisions can impact the economic goals of the company. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6590 Engineering Leadership: Strategic Communications Cr. 3**

Leaders in an engineering work environment face unique team and organizational communication challenges. Strong and precise communication is key to effective leadership and organizational efficiency. Participants in this course will engage in the practical and theoretical aspects of verbal and nonverbal communications in leadership and in the workplace. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6611 Fundamentals of Six Sigma Cr. 3**

The attraction of Lean Six Sigma is obvious — designs that work, fewer defects and wastes in manufacturing, faster processes, lowered production costs, and greater customer satisfaction. With these pluses, it's no wonder the world's leading companies are adopting the Six Sigma approach to product development in ever-growing numbers. This comprehensive course covers the fundamental aspects of Lean and Six Sigma, Lean operation principles and tools, and the Six Sigma process improvement, that is Define-Measure-Analyze-Improve-Control (DMAIC). Offered Winter, Spring/Summer.

**IE 6620 Lean Six Sigma Capstone Cr. 3**

Covers extended aspects of Lean and Six Sigma, both the Six Sigma process improvement, that is, Define-Measure-Analyze-Improve-Control (DMAIC), and Lean operation principles and tools. The course also covers Design for Six Sigma and its utilization earlier in Product Development (PD). We extend the DMAIC process steps with DFSS's IDOV (Identify, Design, Optimize, Verify) process steps that cover the earlier PD phases. Offered Spring/Summer.

**Prerequisite:** IE 6611 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6720 Engineering Risk and Decision Analysis Cr. 3**

Structure, modeling and analysis of technical management decisions with emphasis on multiple objectives and trade-offs, and significant uncertainty. Explores barriers to rational decision making. Offered Fall, Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 6830 Management of Technology Change Cr. 3**

Focuses on technology change and use of systems approach to plan for, manage and implement the diffusion and dynamics of product, process and business model innovation. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.



**IE 6840 Project Management Cr. 3**

Provides an appreciation for the role and importance that project management has in delivering complex engineering projects on time, within budget, within performance specifications, and satisfying the customer. Reviews the fundamental content of the nine knowledge areas and five process groups included in the PMI's Project Management Body of Knowledge and how they apply to the general stages of a product development project with a look at some basic techniques and tools. Offered Winter.

**IE 6850 Manufacturing Strategies Cr. 3**

Manufacturing strategy is one aspect of a company's business strategy that also includes marketing, finance, and research and development. Each strategy development must coexist to achieve the company's goal, meet customer demands, and stay competitive. The objective of this course is to introduce and discuss key components of manufacturing strategy and how this fits within an overall business strategy. Offered Intermittently.

**IE 6991 Industrial Internship Cr. 1-3**

Offered Fall, Winter.

**Repeatable for 99 Credits**

**IE 7100 Mathematical Modeling in Impact Biomechanics Cr. 4**

Review of models created for impact simulations. Regional impact simulation models. Human and dummy models subject to various restraint systems. Offered Intermittently.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BME 7100, ECE 7100, ME 7100

**IE 7220 Advanced Statistical Methods Cr. 3**

Statistics is the science to collect, describe, analyze, interpret, and draw conclusions on data. This course introduces students to the conceptual underpinnings of statistical methods and how to apply them to address more advanced statistical questions than are covered in an introductory statistics course. The statistical methods covered in this course are useful for many types of questions that relate to multiple variables and/or multiple groups. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 7290 Experiment Design and Reliability for the Automotive Industry Cr. 3**

The course is a combination of experiment design/analysis and reliability methods commonly used in the automotive engineering including but not limited to: one-factor experiments, two factor experiments, factorial and fractional designs, optimization, failure distribution analysis, accelerated life data analysis, and life data regression analysis. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 7445 Manufacturing Analytics Cr. 3**

Provides a deep understanding of the intersection of manufacturing and analytics and its application in current manufacturing industries to improve operations and gain competitive advantages. Covers fundamental concepts from data acquisition to analysis to decision making in manufacturing, specifically, manufacturing process and systems data acquisition; manufacturing data and information systems hierarchies and flows (IT/OT layers); manufacturing analytics, both real-time and historical; and data driven manufacturing decision making. Offered Every Other Fall.

**Prerequisite:** IE 6210 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in a Doctor of Philosophy degree.

**IE 7480 Knowledge-Based Design Cr. 3**

Provides in-depth understanding of knowledge roles, knowledge elicitation techniques, knowledge based system and system modeling issues, and semantic modeling to support product design. Students will learn the concepts via lecture, articles, and semantic product model implementation projects. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**IE 7511 Linear and Nonlinear Optimization Cr. 3**

The primary goal of the course is to provide a solid foundation in the deterministic optimization field. The basic concepts in linear programming and nonlinear programming will be covered. Topics include: convex sets/functions, duality, and sensitivity from different perspectives; simplex algorithm for solving linear programming problems; unconstrained and constrained optimization, nonlinear duality theory, Lagrangian relaxation, and algorithmic methods for solving nonlinear programs (including descent methods, Newton's method, conjugate gradient methods, and penalty and barrier methods). Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 7521 Large Scale Optimization and Integer Programming Cr. 3**

Examines modeling and solution methodologies for large scale optimization and integer programming problems. Presents the theory and the exact and approximate techniques that have been developed to solve related models. Techniques include branch and bound, cutting planes, Lagrangian relaxation, Bender's decomposition, and column generation. Polyhedral theory will be discussed at some length. Offered Every Other Winter.

**Prerequisite:** IE 6560 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 7535 Stochastic Programming and Robust Optimization Cr. 3**

Introduction to models, theory and computational methods for stochastic programming and robust optimization. Methods include decomposition-coordination algorithms for large-scale mathematical programming such as Benders, regularized Benders, Dantzig-Wolfe, L-shaped and statistically motivated decomposition methods. Applications, theory and practical algorithm implementation and computational experimentation will be emphasized. Particular attention will be given to large-scale problems, and use of cluster and grid computing architectures to solve them to optimality. Offered Every Other Fall.

**Restriction(s):** Enrollment limited to students in a Doctor of Philosophy degree.

**IE 7570 Deterministic System Models and Optimization Cr. 2**

Methods for quantifying impact of specific constraints on overall performance of a system; use of journal articles on corporate use of these models. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 7620 Advanced Reliability and Survival Analysis Cr. 3**

Focuses on general methods used to analyze the reliability and survival data. Introduces the methods to analyze the expected duration of time until one or more events happen, such as death in biological organisms and failure in mechanical systems. Illustrates the use of proven traditional techniques for reliability and survival data analysis and prediction, and brought up to date with modern computer-based graphical, analytical, and simulation-based methods. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 7710 Stochastic Processes Cr. 3**

Fundamental understanding of various probability models from applied and theoretical perspectives. Topics include: probability review, Markov chains, Poisson process, continuous time Markov chains, queuing processes, and inventory applications. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 7811 Data Mining: Algorithms and Applications Cr. 3**

Application of various basic/advanced data mining techniques to real-world problems. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** CSC 7810

**IE 7860 Intelligent Analytics Cr. 3**

Neural networks and other machine learning techniques for tackling intricate pattern recognition challenges and crafting proficient decision support systems. Delve into foundational concepts, including dimensionality reduction, feature selection, clustering, function approximation, pattern recognition, and forecasting. Course structure centered around hands-on assignments and projects. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$50

**IE 7990 Directed Study Cr. 1-6**

Student selects some field of industrial engineering for advanced study and instruction. An outline approved by the instructor must be presented before registration in this course. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**IE 7995 Graduate Special Topics Cr. 1-4**

Special subject matter in industrial engineering. Topics to be announced in Schedule of Classes. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**IE 7996 Research Cr. 1-6**

Advanced design, investigation or experimental work. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**IE 7999 Engineering Management Leadership Project Cr. 1-6**

Integration of knowledge from individual courses in M.S. engineering management curriculum. Team-oriented focus on major industrial problem. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 10 Credits**

**IE 8920 Decision and Risk Analysis for Research Cr. 3**

The course will focus on complex decisions that involve tradeoffs amongst objectives or are made in the face of uncertainty. This is a practical business and engineering course, specifically intended to develop and improve decision making for managers and executives. Course lectures will focus on decision tools and their application. Interactive class discussions will follow the course lectures and case study presentations. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to students with a major in Industrial Engineering GET or Industrial Engineering; enrollment limited to students in a Doctor of Philosophy degree.

**IE 8930 Global Perspectives and Networks Cr. 3**

Provides technical leaders with a system of frameworks to holistically understand and practically manage operations, to be technologically competitive in the global marketplace. Foundation for the Country Courses. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment is limited to Graduate level students.

**IE 8941 From Idea through Launch: Products and Services I Cr. 2-3**

Course comprised of twelve modules; the processes and progression from product or service innovation to development and launch. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment is limited to Graduate level students.

**IE 8942 From Idea through Launch: Products and Services II Cr. 2-4**

Course comprised of twelve modules; the processes and progression from product or service innovation to development and launch. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment limited to students in the PhD in Engineering program; enrollment is limited to Graduate level students.

**IE 8943 From Launch through Sustainability: Products and Services I Cr. 2-4**

From when the finished product hits the market to all the steps necessary to make the product sustainable. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment is limited to Graduate level students.

**IE 8944 From Launch through Sustainability: Products and Services II Cr. 2-4**

From when the finished product hits the market to all the steps necessary to make the product sustainable. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment is limited to Graduate level students.

**IE 8950 Data Science and Statistics Cr. 3**

Data Science and Statistics is a course designed for working executives with a focus on real-world case studies. It explores prerequisites for successful transformation of firms into digital enterprises and also covers core topics surrounding effective application of statistics and data science for analytics and decision making. The course also surveys promising developments in machine learning and AI. Offered Every Other Spr/Sum.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment limited to students in the PhD in Engineering program; enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**IE 8951 Research Design Cr. 3**

Focus on qualitative research design and methods. Discussion of conceptual and practical facets of the process of framing a research question, up to development of an instrument for data collection. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**IE 8952 Research Methods Cr. 3**

Focus on quantitative research design and methods. Topics such as purpose of statistical models, mathematical representation, interpretation, and methods are covered. Typical methods include: multiple regression, multivariate analysis (including survey data), and structural equation modeling. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**IE 8960 Literature Review Cr. 1-2**

Development of library skills for identifying key authors, articles, journals, books, dissertations, case studies, conferences, web sites, professional associations, and NSF funding for a scholarly area of interest. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment limited to students in the PhD in Engineering program; enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**IE 8970 Global Leadership and Strategy for Engineering Management Cr. 3**

To provide insight, concepts and tools for those times when, executives are called upon, as leaders of technical organizations, to influence and develop business strategy in the global context including issues related to technology, innovation, business model change, and industry disruption. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Industrial Engineering GET or Industrial Engineering GET; enrollment is limited to Graduate level students.

**IE 8995 Graduate Seminar Cr. 1**

Research and development methods. Leading-edge research topics. Platform for student to present preliminary research findings and obtain feedback. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the PhD in Engineering program; enrollment is limited to Graduate level students.

**Repeatable for 99 Credits**

**IE 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**IE 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**IE 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** IE 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** IE 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** IE 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**IE 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

# IM - Immunology and Microbiology

**IM 7010 Fundamentals of Immunology Cr. 2**

Basic concepts and current developments in immunology, including cellular and molecular aspects, regulation, and immunopathological mechanisms. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 7020 Fundamentals of Microbiology Cr. 2**

Molecular Mechanisms of Bacterial Pathogenesis uses bacterial pathogens as paradigms to illustrate the disease process. Molecular mechanisms of bacterial colonization, evasion of the host immune response, inflammation, invasion and tissue damage by exotoxin secretion are key learning objectives. Host and pathogen interaction and the role of the microbiome in human health are taught. Antimicrobial resistance is covered at the level of development and transmission. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 7030 Molecular Biology of Viruses Cr. 2**

Basic principles of virology including virus host interactions and the molecular biology of virus multiplication and genetics. Offered Winter.

**Prerequisite:** BMB 7010 with a minimum grade of B or MGG 7010 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 7040 Fundamentals of Research Cr. 2**

Lecture/discussion of practical aspects of professional scientific research. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate or Medical level students; enrollment limited to students in the School of Medicine.

**IM 7060 Laboratory Rotation Cr. 1-4**

Students complete 3-4 week rotations in three different research laboratories prior to choosing a thesis research lab. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Biochem, Microbio & Immunology.

**Repeatable for 4 Credits**

**IM 7140 Critical Thinking in Science Cr. 1**

The objective of the course is to provide students with opportunities to practice explicit application of critical thinking skills for the analysis of scientific literature through the deliberate practice of reading, writing, and small group discussion. Strong inference and the principles of logic will be used to illustrate how doubt-driven motivation can be applied to a research project without a priori thinking that can result in confirmation bias. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 7450 Current Trends in Immunology Cr. 2**

Lectures and discussions on current literature and research problems. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 7520 Molecular Mechanisms of Bacterial Pathogenesis Cr. 2**

Molecular Mechanisms of Bacterial Pathogenesis uses bacterial pathogens as paradigms to illustrate the disease process. Molecular mechanisms of bacterial colonization, evasion of the host immune response, inflammation, invasion and tissue damage by exotoxin secretion are key learning objectives. Host and pathogen interaction and the role of the microbiome in human health are taught. Antimicrobial resistance is covered at the level of development and transmission. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Immunology and Microbiology; enrollment is limited to Graduate level students.

**IM 7530 Advanced Microbiology Research Cr. 1-4**

Independent study between a BMI student and an advisor. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Biochem, Microbio & Immunology.

**Repeatable for 4 Credits**

**IM 7650 Current Trends in Host-Microbiome Interactions Cr. 2**

We are each populated by diverse microbial communities that affect our physiological and immunological profiles and ultimately our likelihood of experiencing health or disease. This course will explore the literature related to all aspects of host-microbiome interactions, and will do so from mechanistic, ontogenetic, functional, and phylogentic perspectives. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 7890 Seminar Cr. 1**

Weekly BMI seminar series. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Immunology and Microbiology; enrollment is limited to Graduate level students.

**IM 7996 Research Cr. 1-9**

Lab research. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Immunology and Microbiology; enrollment is limited to Graduate level students.

**Repeatable for 30 Credits**

**IM 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**IM 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**IM 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** IM 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** IM 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** IM 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**IM 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## INF - Information Sciences

**INF 4010 Introduction to Informatics Cr. 3**

This course introduces students to the discipline of informatics—how information technologies are developed, applied, and utilized in society. It examines the most important issues at the intersection of information technology and society including the economy, health and medicine, business and finance, politics, and the natural environment. The course introduces students to issues of mis- or weak-information, information ethics, and information policy. Students will learn and discuss the basic concepts of Informatics including concepts such as data, information, knowledge, and uncertainty. Distinct aspects of web technology, interface design, programming and application design, and data science may be emphasized in certain sections, including exercises on parsing, managing, analyzing, and archiving data. Offered Every Term.

**INF 6010 Information in Society Cr. 3**

Foundational information is essential to providing knowledge of and appreciation for the nature and functions of the information professions. This course assists in the development of a conceptual framework to understand the role of information organizations in society, past, present, and future, and promotes a personal philosophy of professional development. Social justice is a critical element to working in information organizations and to the creation of personal beliefs and values. The integration of both professional knowledge and personal values toward working in an information organization creates the structure of the course. Core course. Prerequisite for all MLIS courses. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 6050 Computer Programming Cr. 3**

Introduction to the basics of programming, utilizing scripts to connect and retrieve information from a database, and the development of coding skills that will allow creation of more advanced applications. Offered Every Term.

**INF 6080 Fundamentals of Information Technology Cr. 3**

Students will understand the interactions of computer hardware, software, networks and systems. Students will also apply productivity tools to solve professional problems of practice. Finally, students will have the foundation to recognize and improve accessibility of information technologies for diverse users and information centers. The 21st Century information professional is faced with an ever-changing environment with new and updated technologies as well as an increasingly tech-savvy patronage. The very existence of libraries depends upon the professionals who work there. Providing information to patrons in a way that is appropriate, accessible, and relevant is the key to survival. This course provides the framework for students to understand the important roles of information technologies in the information center, to develop an understanding of the technology lexicon and to confidently adapt to changing technologies. Core course. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 6120 Access to Information Cr. 3**

This general reference course introduces students to the content, structure, and organization of print and non-print reference resources. The course addresses the philosophy and procedures of equitable and inclusive information provision to diverse populations. The course provides practical experience in reference interviewing and searching techniques in finding answers to real world questions along with promoting information literacy instruction. Core course. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.



**INF 6210 Organization of Information Cr. 3**

This course introduces the fundamental principles and concepts critical to a user's ability to access information efficiently and effectively. Libraries and information centers ensure that materials are described, classified and organized so that users can find, identify, select, obtain and navigate the documents that satisfy their information needs. These fundamental principles and concepts are examined and applied in practice and with a critical eye to social justice issues to develop students' understanding of the basic processes involved in providing access to information. Core course. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 6415 Project Management Cr. 3**

Identification of current information systems and problems, determination and definition of information needs and requirements, evaluation of alternative solutions. Offered Winter.

**INF 6420 Web Development Cr. 3**

Use of Internet protocols (ftp, telnet, smtp, http, gopher), location of Internet resources for library reference and research uses, construction of World Wide Web resources using HTML and successor technologies. Offered Every Term.

**INF 6460 Database Design and SQL Cr. 3**

Fundamentals of database design and basics of database implementation; focus on library and information science practice. Related and current database management technologies used in hands-on experiences. Offered Yearly.

**INF 6490 Statistics and Data Analysis Cr. 3**

Statistical methods of data analysis are necessary for understanding important aspects of our world and are essential for a variety of research and professional activities. This course offers an applied introduction to statistics and data analysis. It covers the process of research question formulation to data organization, analysis and communication of results; the elements of descriptive and exploratory statistics, including probability concepts and data visualization; and inferential statistics, including techniques of correlation and regression, as well as confidence intervals and hypothesis testing. The course uses practical examples to guide the student through the various concepts and issues with data analyses and provides tutorials on how to use R for analysis and basic data visualization. Activities include readings, videos, quizzes, data analysis labs, and a final data analysis project. Offered Fall.

**Restriction(s):** Enrollment limited to students in the School of Information Sciences.

**INF 6520 Beyond Books: Youth Literature in Action Cr. 3**

Explores the quality and quantity of literature published for children, particularly those in elementary and middle school grades in school and public library contexts. The selection, evaluation, promotion and use of literature and other media are studied along with the examination of the relationships of literature to developmental characteristics and individual differences of the child. Offered Yearly.

**Prerequisites:** INF 6010 with a minimum grade of C (may be taken concurrently) and INF 6080 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 6530 Young Adult Literature Cr. 3**

Standards for evaluating young adult literature. Selection of literature for individual students in relation to interest and reading ability. Use of classroom collections. Techniques for helping students read poetry, drama and fiction. Offered Yearly.

**Prerequisites:** INF 6010 with a minimum grade of C (may be taken concurrently) and INF 6080 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 6780 Introduction to Records and Information Management Cr. 3**

Management of information, including records creation, records inventory and appraisal, retention/disposition scheduling, filing systems, maintenance of inactive records, micrographics, vital records protection, and electronic impact on records management. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 6780

**INF 6850 Issues in Information Sciences Cr. 1-3**

Critical analysis research in the information sciences, socio-technological trends, implications for the profession. Topics to be announced in Schedule of Classes. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**INF 7040 Management and Leadership Cr. 3**

This course introduces management skills and leadership development necessary for the successful functioning of libraries and other information institutions. Students will learn strategies that foster diverse leadership styles and practices to meet the needs of communities being served. Libraries and information institutions are complex organizations influenced by several factors including their size, user communities, mission, organization structure, and location. New graduates often receive assignments that require managerial and leadership skills. Professionals advancing within their careers may further become involved in the management process and assume responsibilities at various administrative levels. This course is designed to prepare students with the foundational skills for various levels of involvement in the management of libraries and information institutions. Core course. Offered Every Term.

**Prerequisites:** INF 6080 with a minimum grade of C (may be taken concurrently) and INF 6010 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7050 Public Libraries Cr. 3**

This course is intended to expand the concepts which are broadly introduced in INF 6010 and INF 7040, and to build on other courses which are required of MLIS candidates in a manner specific to public librarians. It provides library and information science students with knowledge of the history, organization, and function of public libraries, and the skills necessary to deliver the wide range of services unique to this challenging area of librarianship. Offered Yearly.

**Prerequisites:** INF 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7060 Academic Libraries Cr. 3**

Academic libraries play a crucial role in education, training, research, and scholarly communication. Their collections and services are developed to promote the goals and objectives of the parent institution. Academic libraries are viewed as an important instructional support unit and participant in the teaching- research process of colleges and universities with diverse student body. They also play an important role in the storage and preservation of recorded human knowledge. In recent years, their role in the development and their utilization of electronic information technology has led to significant changes in service to their diverse sets of users. Since academic libraries are serving complex organizations, most are complex organizations themselves. Their staff perform a multitude of tasks and services requiring specialized knowledge and competencies. Offered Fall.

**Prerequisites:** INF 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7070 Special Libraries and Information Centers Cr. 3**

History, organization, and functions of various types of special libraries and skills necessary to deliver a wide range of services. Offered Winter.

**Prerequisites:** INF 6120 with a minimum grade of C and INF 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7250 Programming and Services for Children and Young Adults Cr. 3**

Principles and procedures for planning, managing and delivery of public library services to children and young adults. Offered Winter.

**Prerequisites:** INF 6080 with a minimum grade of C and INF 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7310 School Library Media Programs Cr. 3**

Role of library media programs in the school; methods of planning, organizing, and operating such programs; impact of technology upon instruction and library service. Core course. Offered Every Other Year.

**Prerequisites:** INF 6010 with a minimum grade of C and INF 6080 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7320 The Media Specialist as Teacher and Instructional Consultant Cr. 3**

Instructional functions of the library media specialist in terms of integrating information processing skills in the curriculum through the instructional design process by working in partnership with teachers and applying the principles of teaching and learning theories. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7340 Collection Development and Selection of Materials Cr. 3**

Since a principal function of a library is to provide materials to meet the needs of its clientele and to support the organization's mission, the objective of this course is to provide philosophical and practical guidance in selecting and acquiring materials for library collections. The course will also treat the larger issues of collection management including evaluation, deselection, preservation, and diversity and equity issues. Offered Every Term.

**Prerequisites:** INF 6010 with a minimum grade of C and INF 6080 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the School of Information Sciences.

**INF 7370 Culture Matters: Decolonizing Information Cr. 3**

Study of impact of cultural diversity on library services; development of relevant collections; effective interaction with a diverse community. Offered Winter.

**Prerequisites:** INF 6120 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7435 Integrated Library Systems Cr. 3**

Practical experience with common Integrated Library Systems; understanding the role of ILS in function of the information organization. Extensive use of computing facilities. Offered Spring/Summer.

**Prerequisites:** INF 6210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7440 Advanced Web Development Cr. 3**

Basic skills in using scripting languages to program and manipulate data structures for text information in library applications such as databases and websites. Offered Winter.

**Prerequisites:** INF 6050 with a minimum grade of C and INF 6420 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7455 Human-Computer Interaction Cr. 3**

Interactions between human beings and computer technologies through usability evaluations and user experience design. Offered Winter.

**Prerequisites:** INF 6080 with a minimum grade of C or INF 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7470 Information Architecture Cr. 3**

Dissemination of information that affects context, content and user. Associations with website development; use in technical writing, presentation preparation, report generation. Offered Winter.

**Prerequisites:** INF 6080 with a minimum grade of C or INF 6000 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7491 Applied Data Analytics Cr. 3**

Key areas of information analytics used by data librarians: quantitative statistics, computer simulation, and data mining tools/techniques. Offered Yearly.

**Prerequisites:** INF 6050 with a minimum grade of C and INF 6490 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7492 Information Visualization Cr. 3**

Analysis of large data sets and drawing insights through use of information technology tools, statistical techniques, charts and graphs. Offered Yearly.

**Prerequisites:** INF 6080 with a minimum grade of C or INF 6000 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7500 Information Behavior Cr. 3**

Totality of human behavior in relation to sources and channels of information. Information needs and barriers; information seeking, use and dissemination; information poverty and information overload; topics studied in variety of contexts. Offered Fall.

**Prerequisites:** INF 6080 with a minimum grade of C or INF 6000 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7610 Health Sciences Information Services and Resources Cr. 3**

First in series of three courses, designed to provide students with skills necessary to become health sciences librarians. Offered Every Other Year.

**Prerequisites:** (INF 6120 with a minimum grade of C and INF 6210 with a minimum grade of C) or INF 6000 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7620 Health Informatics Cr. 3**

Overview of health informatics and e-science, and critical role of health information technologies to enhance quality healthcare. Offered Winter.

**Prerequisites:** INF 6080 with a minimum grade of C or INF 6000 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7710 Archival Administration Cr. 3**

Basic training in archival methods. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 7840

**INF 7712 Intellectual Property for Information Professionals and Archivists Cr. 1**

Intellectual Property issues are challenging for those in information management. The complexity of ownership, reproduction rights, access rights, preservation copies and digital surrogates as well as existing copyright and case law decisions are dissected in this course. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 7715 Archival Reference Cr. 1**

This course addresses the challenges in relating to researchers, assisting them in understanding what exists and what does not, as well as designing a reference process with the researcher in mind. There will also be some exposure to conducting a reference interview and how to help a user define what they need. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 7730 Administration of Audio Visual Collections Cr. 3**

Basic course in the fundamentals of administering a visual collection: evaluation, organization, and control of visual collections in archives, librarians, historical agencies, and museums. Offered Winter.

**Prerequisites:** INF 7710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 7890

**INF 7740 Archives and Libraries in the Digital World Cr. 3**

Overview of electronic tools and the role of digital process in libraries and archives. Offered Spring/Summer.

**Prerequisites:** INF 6010 with a minimum grade of C, INF 7710 with a minimum grade of C, or HIS 7840 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 7745

**INF 7750 Introduction to Archival and Library Conservation Cr. 3**

Fundamentals of archival and library conservation problems and methods essential for effective preservation management of paper and associated materials. Offered Spring/Summer.

**Prerequisites:** INF 6010 with a minimum grade of C, INF 7710 with a minimum grade of C, or HIS 7840 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 7810

**INF 7770 Oral History: A Methodology for Research Cr. 3**

Techniques of gathering data from individuals for use in research, classroom teaching, historical, cultural or other contexts. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 7860

**INF 7775 Primary Historic Research for Information Professionals and Archivists Cr. 1**

In Library and Information Science education hands-on primary source work broadens librarians' and archivists' research skills. Excellent primary historic research abilities will deepen the knowledge of the resources available to the student and their future patrons. This course addresses the challenges in conducting primary research of original historic materials. Students will develop organizational skills in research pre-planning, on-site planning as well as note-taking. The intent is to allow students to efficiently use their time to create a solid definable trail in order to document this type of research. This will enhance students' ability to publish, present, and assist researchers in their future information management career. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 7780 Description and Access for Archives Cr. 3**

Investigation of description of archival materials emphasizing the electronic technologies and standard practices. Offered Yearly.

**Prerequisites:** INF 7710 with a minimum grade of C (may be taken concurrently) or HIS 7840 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 7820

**INF 7785 Website Preservation Cr. 2**

The Internet has become our main mode of communication. The need to preserve websites is a challenge culturally and technologically. This is a growing field with a limited amount of professionals having developed these unique skills. This course addresses the challenges in needs assessment, as well as technological limitations. Students will spend significant time with these complex tools and understand how to create successful workflows. Offered Intermittently.

**Prerequisites:** INF 6050 with a minimum grade of C, INF 6080 with a minimum grade of C, or INF 7780 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 7790 History of Books, Printing, and Publishing Cr. 3**

Development of writing, the alphabet, early materials, manuscripts, paper making, invention and spread of printing, famous presses, modern methods of print and electronic production. The book as artistic output of the culture and part of the world in which it was produced. Offered Yearly.

**Prerequisites:** INF 6010 with a minimum grade of C and INF 6080 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7830 Community Engagement Cr. 3**

Community engagement in the context of Library and Information Science refers to the ways that information professionals in libraries, archives, and museums (for the purposes of this course called, public information institutions) learn about, collaborate with, and provide service and outreach to community members. Public information institutions and libraries in particular have historically enjoyed a high degree of public trust and respect. Today, librarians and information professionals in these settings are building on that trust and working to support, invigorate, and sustain the communities they serve by collaborating with members of those communities. Offered Yearly.

**Prerequisites:** INF 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 7835 Community Archives Cr. 3**

This class focuses on the history, politics, challenges, and possibilities of community archives. Through lectures, readings, discussion, projects, and critical engagement with community archives projects students will develop an understanding of community-based archives. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 7880 Instructional Methods for Librarians Cr. 3**

Introduction to library instruction, bibliographic instruction, information literacy, or user education for those expected to provide library instruction to clients. Offered Yearly.

**Prerequisites:** INF 6120 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Liberal Arts & Sciences or School of Information Sciences.

**INF 7885 Cultural Heritage Institutions: Management and Leadership Cr. 3**

The operation of public and private historical agencies, archives and museums. Determination of agency priorities, problems of staffing and finance, governmental regulations, community relations, and professional ethics. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 7880

**INF 7900 Digital Libraries Cr. 3**

Critical issues, theoretical and practical principles of digital libraries. Offered Yearly.

**Prerequisites:** INF 6010 with a minimum grade of C, INF 6080 with a minimum grade of C, INF 6120 with a minimum grade of C, and INF 6210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7910 Metadata in Theory and Practice Cr. 3**

Theoretical and practical principles of metadata used to provide access to digital objects online. Offered Yearly.

**Prerequisites:** INF 6010 with a minimum grade of C, INF 6080 with a minimum grade of C, INF 6120 with a minimum grade of C, and INF 6210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7920 Digital Curation and Preservation Cr. 3**

Theoretical principles and practical aspects of digital curation and preservation within libraries, museums, archives and other institutions administering data and digital content. Offered Yearly.

**Prerequisites:** INF 6210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7930 User Experience (UX) Design Cr. 3**

An introduction to user experience (UX) design, this course applies concepts of human-computer interaction through a series of assignments and a class project, which deal with methods of designing and developing a system/product with effective UX. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**INF 7950 Practicum: Library Services Cr. 3**

Practical experience with digital content under direction of professional librarian and supervision of faculty member. Theory and competencies relevant to the environment. Seminars to be arranged. Offered Yearly.

**Prerequisites:** INF 6010 with a minimum grade of C, INF 6080 with a minimum grade of C, INF 6120 with a minimum grade of C, INF 6210 with a minimum grade of C, INF 7040 with a minimum grade of C, and 9 credits from INF 6000-9999

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7960 Practicum: Information Management Cr. 3**

Practical experience with technology-based information management under direction of information professional and supervision of a faculty member. Theory and competencies relevant to the project activities. Seminars to be arranged. Students are eligible to enroll in their last semester. Offered Every Term.

**Prerequisites:** INF 6080 with a minimum grade of C or INF 6000 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7970 Practicum: Archives Cr. 3**

On-site experience in archival center under direction of professional librarian or archivist and supervision of faculty member. Theory and competencies relevant to the environment. Offered Every Term.

**Prerequisites:** INF 7710 with a minimum grade of C, INF 7780 with a minimum grade of C, and 2 of (INF 6780, INF 7730, INF 7740, INF 7750, INF 7770, or INF 7885)

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** HIS 7685

**INF 7975 Practicum: Digital Content Cr. 3**

Practical experience with digital content under direction of professional librarian and supervision of faculty member. Theory and competencies relevant to the environment. Offered Every Term.

**Prerequisite:** INF 7900 with a minimum grade of C and INF 7910 with a minimum grade of C and INF 7920 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**Repeatable for 6 Credits**

**INF 7980 Practicum: School Media Cr. 2-3**

On-site experience in school library media/information center under direction of professional librarian and supervision of faculty member; theory and competencies. Seminars to be arranged. Offered Every Term.

**Prerequisites:** INF 7320 with a minimum grade of C, INF 6120 with a minimum grade of C, INF 6210 with a minimum grade of C, INF 7310 with a minimum grade of C, and 9 credits from INF 6000-9999

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

**INF 7990 Research and Directed Study Cr. 1-8**

Directed study and individual research under faculty guidance. Offered Every Term.

**Prerequisites:** INF 6010 with a minimum grade of C and INF 6080 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Liberal Arts & Sciences or School of Information Sciences.

**Repeatable for 8 Credits**



### **INF 7996 Research for the Information Professions Cr. 3**

A knowledge of research methods is necessary for information professionals to conduct research, assist other researchers, integrate ethical principles, and critically read research literature. This course is also designed to demonstrate the importance of research and to strengthen the critical and analytical skills of students. It examines the role of social justice, inclusion, equity and diversity in research in the information professions, and it examines the role of research in the development of the profession and in contemporary management. The course includes consideration of various research methods used in the information professions with illustrations based on specific problems related to information organizations. Students identify a research problem, design a research project to investigate the problem and write a research proposal describing how the research would be conducted. Core course. Offered Every Term.

**Prerequisites:** (INF 6120 with a minimum grade of C and INF 6210 with a minimum grade of C) or INF 6000 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

### **INF 8000 Seminar in Information Policy Cr. 3**

How information policies improve or set constraints on the goals and objectives of libraries and other information organizations. Effect of policies on interpersonal and financial quality of communities. Economic, technical, and ethical policy questions. Offered Yearly.

**Prerequisites:** INF 6080 with a minimum grade of C or INF 6000 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

### **INF 8140 Advanced Reference Service Strategies Cr. 3**

Information needs and seeking behaviors, reference interview techniques, and information literacy. Offered Fall.

**Prerequisites:** INF 6120 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

### **INF 8160 Advanced Online Searching Cr. 3**

Advanced topics in online searching using broad range of databases, including Internet resources. Topics include: sophisticated search strategies, competitive intelligence, retrieval and organization of citations. Offered Winter.

**Prerequisites:** INF 6120 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

### **INF 8850 Advanced Issues in Information Sciences Cr. 3**

Current topics affecting the information sciences. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

### **INF 8998 Specialist's Research Seminar Cr. 3**

Advanced research methods and application. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Information Sciences.

## **ITA - Italian**

### **ITA 1010 Beginning Italian I Cr. 4**

Introduction to Italian language and its culture through exposure to authentic materials and interactive activities; developing communicative reading, writing, listening, and speaking skills and cultural proficiency. No experience with Italian is needed. Offered Every Term.

**Fees:** \$5

### **ITA 1020 Beginning Italian II Cr. 4**

Continuation of ITA 1010. Strengthening communicative skills (reading, writing, speaking, and listening) and expanding cultural understanding and proficiency through exposure to authentic materials and interactive activities. Offered Every Term.

**Prerequisites:** ITA 1010 with a minimum grade of D-

**Fees:** \$5

### **ITA 2010 Intermediate Italian Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Refining communicative skills (reading, writing, speaking, and listening) and cultural proficiency through extensive exposure to authentic sources, material, and interactive activities. Completion of this course fulfills the General education requirement for foreign language and culture. Offered Every Term.

**Prerequisites:** ITA 1020 with a minimum grade of D-

**Fees:** \$5

### **ITA 2020 Italian through Film Cr. 3**

Increasing communicative abilities and cultural proficiency through study and analysis of Italian films, readings including contemporary news and fiction, and more interactive activities. Offered Yearly.

**Prerequisites:** ITA 2010 with a minimum grade of D-

**Fees:** \$30

### **ITA 2700 Anguish and Commitment: European Existentialist Literature Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Hesse, Kafka, Pirandello, Sartre, Camus and Unamuno. Offered Every Other Year.

**Equivalent:** FRE 2700, GER 2700, SPA 2700

### **ITA 2710 Italy and Italians I Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry

Overview of development of Italian culture and civilization from their origins to 1500; emphasis on those aspects that prepared the political, social, cultural and intellectual groundwork of Humanism and the Renaissance. Taught in English. Offered Yearly.

### **ITA 2720 Italy and Italians II Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry

Overview of Italian culture and civilization from 1500 to 1947: the Renaissance, Italian contributions to science, Unification of Italy, the Fascist era, the new republic. Taught in English. Offered Yearly.

### **ITA 2991 Italian Fairy Tales Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry

Introduction to the interdisciplinary context of major Italian tales and other European fairy tales traditions, emphasizing their transformation from oral and literary form into film, animation, opera, ballet, art, and music. All lectures and readings in English. Offered Fall.

### **ITA 3030 Road to Italy Cr. 3**

Study and in-depth analysis of the Italian language and its cultural daily life. An interactive and highly communicative understanding of art, literature, music, cinema, food, media and TV, sport and leisure activities. Offered Yearly.

**Prerequisites:** ITA 2010 with a minimum grade of D-

**Fees:** \$30

**ITA 3040 Business Italian Cr. 3**

Understanding and developing basic business terminology, while studying style and etiquette for the Italian business world. Students will also learn how to write business correspondence in Italian. Offered Every Other Year.

**Prerequisites:** ITA 2010 with a minimum grade of D-

**ITA 3100 Caffè Italia Cr. 3**

Enhancing speaking, reading, and listening skills through debates, discussions and presentations on current events and topics. Offered Every Term.

**Prerequisites:** ITA 2020 with a minimum grade of D-

**ITA 3200 Italian Rebels Cr. 3**

A journey through forty years of turbulent Italian contemporary history. Through readings, songs of protest, epic film, and more, this course will strengthen and enhance the cultural and linguistic knowledge of contemporary Italy and Italians, focusing on formal and informal writing and research skills. Offered Every Other Year.

**Prerequisites:** ITA 2020 with a minimum grade of D-

**ITA 3300 Science, History, and Culture of Italian Cuisine Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry

Explores the science, history, and culture of Italian food and the Mediterranean Diet, and how Italian food culture has evolved throughout the centuries. Taught in English. Offered Yearly.

**Fees:** \$15

**Equivalent:** NFS 3300

**ITA 3500 Dante in Translation: The Divine Comedy Cr. 3**

An introduction to Dante and his cultural milieu through a critical reading of selected cantos of the Divine Comedy, and selected passages of Dante's minor works. Offered Yearly.

**ITA 4610 The Birth of Italian Language and Literature Cr. 3**

A journey in Italian literature and culture, from Marco Polo and the birth of the Italian language to the controversial writings of Galileo Galilei. Offered Yearly.

**Prerequisites:** ITA 2020 with a minimum grade of D-

**ITA 4620 The Birth of Italy Cr. 3**

A study of the formation of Italy through its literature and culture, from the Enlightenment to the contemporary period. Offered Yearly.

**Prerequisites:** ITA 2020 with a minimum grade of D-

**ITA 5000 Minor Language Practicum Cr. 3**

Controlled application of active language skills for students electing a Ph.D. minor in Italian. No degree credit toward the Ph.D. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**ITA 5150 Italian Cinema Cr. 3**

Concentrated study of specific trends or the development of individual directors. Topics to be announced in Schedule of Classes. Offered Every Other Year.

**Fees:** \$10

**Repeatable for 9 Credits**

**ITA 5200 Italian Theater Workshop Cr. 3**

A study of Italian language, including verbal expression, pronunciation, phonetics, listening exercises, and gestures in the applied context of theater performance. Offered Every Other Year.

**Prerequisites:** ITA 3100 with a minimum grade of D-

**ITA 5570 Topics in Italian Studies Cr. 3**

In-depth study of author or group of authors, genre, historic period, or particular literary or cultural movement. Topics to be announced in Schedule of Classes. Offered Every Other Year.

**Prerequisites:** ITA 4610 with a minimum grade of D- and ITA 4620 with a minimum grade of D-

**Repeatable for 9 Credits**

**ITA 5990 Directed Study Cr. 1-4**

Offered Every Term.

**Repeatable for 8 Credits**

**ITA 5993 Writing Intensive Course in Italian Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with designated corequisite; see section listing in Schedule of Classes for corequisites available each term.

Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Fall, Winter.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and (ITA 3000-3999 (may be taken concurrently) or ITA 6000-6999 (may be taken concurrently))

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**ITA 5999 Internship in Italian Studies Cr. 3**

Internship in a public or private organization related to Italian studies. Offered for undergraduate credit only. Offered Every Term.

**Prerequisite:** ITA 3040 with a minimum grade of C- or ITA 3100 with a minimum grade of C- or ITA 3200 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Italian or Italian Honors.

**ITA 6400 Languages of Italy Cr. 3**

A study of the Italian language and its dialects from early years to present. Representative texts from various periods will explore Italy's diverse linguistic landscape. Offered Every Other Year.

**ITA 6610 Dante's Comedy I: Inferno Cr. 3**

A close reading of Dante's Inferno with attention to sources, background, and interpretation. Offered Every Other Year.

**Prerequisite:** ITA 3200 with a minimum grade of D-

**Repeatable for 6 Credits**

**ITA 6620 Dante's Comedy II: Purgatory and Paradise Cr. 3**

A close reading of Dante's Purgatory and Paradise with attention to sources, background, and interpretation. Offered Every Other Year.

**Repeatable for 6 Credits**

**ITA 6680 Love, Politics and the Art of Elegance Cr. 3**

A study of major contributions of the Italian Renaissance that shaped modern thought with a special focus on the art of elegance, effortless mastery, love, and politics. Offered Every Other Year.

**Prerequisites:** ITA 4610

**Repeatable for 12 Credits**

**ITA 6690 Italian Love Sickness Cr. 3**

A close study of major Baroque works that shaped ideas of love, the phenomenon of love sickness, and the scientific remedies for it. Offered Every Other Year.

**Prerequisites:** ITA 4610

**ITA 6700 Performing Italy Cr. 3**

A study of Italian theater, music, and opera, with a particular focus on the eighteenth century. Offered Every Other Year.

**Prerequisites:** ITA 4620

**Repeatable for 9 Credits**

**ITA 6800 Imagining Italy, Creating Italians Cr. 3**

A study of the literature, culture, and history of the period of Italian unification. Offered Every Other Year.

**Prerequisites:** ITA 4620

**Repeatable for 9 Credits**

**ITA 6870 Modern Italy in Transition Cr. 3**

A study of transformation, change, and crisis in Italy and its modernist art and literature, focusing on the period from the late 1800s through the early 1900s. Offered Every Other Year.

**Prerequisites:** ITA 4620

**Repeatable for 9 Credits**

**ITA 6900 Contemporary Italian Culture Cr. 3**

Study of contemporary Italian culture, including literature, film, and other media. Offered Every Other Year.

**Prerequisites:** ITA 4620

**Repeatable for 9 Credits**

**ITA 7010 Introduction to Literary Theory Cr. 3**

Graduate-level introduction to key critical perspectives, theories, problems, and questions that have informed the discussions and analyses of twentieth- and twenty-first-century literary and cultural scholars. Specific theoretical paradigms used to determine the task of textual interpretation, locate the limits of each approach, trace the emergence of subsequent theoretical paradigms, and think about how such theories might or might not be relevant in the study of specific texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** FRE 7010, GER 7010, SPA 7010

**ITA 7100 Introduction to Translation Studies Cr. 3**

Introduction to Translation Studies presents the essential theories as tools to deal with the significant practical problems and issues that may confront the practitioner in specialized translation. The class will focus on the following points: 1) acquisition of the basics of translation theory in order to facilitate the comprehension of translation's multidisciplinary processes and be aware of the variety of theoretical approaches, 2) the study and evaluation of primary methods of research to enhance future research and practices, 3) the acquisition of necessary metalanguage, which allows the textual analysis of the translation process, the solution driven mind of a translator, the approach to tackle recurring translation problems, and the evaluation of translated texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ARB 7100, CLA 7100, FRE 7100, GER 7110

**ITA 7996 Research Project Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ITA 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**ITA 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## JPN - Japanese Studies

**JPN 1010 Elementary Japanese I Cr. 4**

Introduction to written and spoken Japanese. Offered Every Term.

**Fees:** \$5

**JPN 1020 Elementary Japanese II Cr. 4**

Continuation of JPN 1010. Offered Every Term.

**Prerequisites:** JPN 1010 with a minimum grade of D-

**Fees:** \$5

**JPN 2010 Intermediate Japanese I Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Continuation of JPN 1020. Focus on language and Japanese culture. Offered Every Term.

**Prerequisites:** JPN 1020 with a minimum grade of D-

**Fees:** \$5

**JPN 2020 Intermediate Japanese II Cr. 4**

Continuation of JPN 2010. Language and culture learned through situational activities with tasks to develop language proficiency. Enhancement of Kanji (ideograph writing system) learning to help students develop higher reading proficiency. Offered Winter.

**Prerequisites:** JPN 2010 with a minimum grade of D-

**Fees:** \$5

**JPN 2110 Listening Japanese with Media and Animation Cr. 3**

Development of listening skills using Japanese media, animation, and movies. Offered Intermittently.

**Prerequisites:** JPN 1020 with a minimum grade of D-

**JPN 2720 Japanese Culture through Myth, Fairy Tales, and Media Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry

Introduces Japanese philosophy, beliefs, values, and cultural heritage through a broad survey of Japanese fairy tales and media forms (cinema, TV drama, and Anime). Through the analysis of these different texts, students will consider questions related to Japanese identity, culture, communication styles, and politics, reflecting in particular on questions of space, place, and the environment. Ethnographic approaches will be also introduced. Offered Spring/Summer.

**JPN 2800 Culture Studies in Japan (Homestay and Study Abroad Tour) Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry

Survey of Japanese culture taught in English. Introduction of family and group organization, customs, pop culture (fashion/music/films), aspects of daily lives (thought/religion/arts/society), and a brief modern history. Also, survival language practice. Offered Spring/Summer.

**Prerequisites:** JPN 1010 with a minimum grade of D-

**Equivalent:** ASN 2800

**JPN 3010 Advanced Japanese I Cr. 3**

Introduction to high intermediate grammar. Three thematic units: body and health; life and careers; communication and media. Emphasis on communication for business. Offered Yearly.

**Prerequisites:** JPN 2020 with a minimum grade of D-

**JPN 3020 Advanced Japanese II Cr. 3**

Introduction to language pertinent to media communication, using written, visual, and/or audio materials. Offered Yearly.

**Prerequisites:** JPN 3010 with a minimum grade of D-

**JPN 3030 Japanese Reading and Writing Cr. 3**

Various writing styles. Emphasis on expanding the vocabulary and Kanji characters. Offered Yearly.

**Prerequisites:** JPN 3010 with a minimum grade of D-

**JPN 3540 Intensive Japanese Cr. 4-6**

Introduction to the linguistic patterns, sound system, and writing system of the Japanese language. Open only to JCMU Study Abroad Students. Offered Fall, Winter.

**Repeatable for 12 Credits**

**JPN 3990 Directed Study Cr. 1-6**

Directed study tailored to student and faculty interests and specializations. Offered Every Term.

**Repeatable for 6 Credits**

**JPN 4010 Business Japanese I Cr. 3**

Expansion of vocabulary and grammar knowledge especially used for business settings. Acquisition of business language and etiquette, role-playing of conversation patterns, reading business memos and documents. Classes are all task-oriented for business. (Basic.) Offered Yearly.

**Prerequisites:** JPN 3020 with a minimum grade of D-

**JPN 4550 Japanese Culture and Society I Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Examination of significant social institutions and cultural aspects of modern Japanese society, including their historical development. Open only to JCMU Study Abroad Students. Offered Fall.

**JPN 4560 Japanese Culture and Society II Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Significant social institutions and cultural aspects of modern Japanese society, including their historical development. Open only to JCMU Study Abroad Students. Offered Winter.

**JPN 5220 Languages of Asia Cr. 3**

Introduction to major language families in Asia; grammar, sounds, language contacts. Offered Winter.

**Equivalent:** CHI 5220, LIN 5100

**JPN 5999 Internship in Japanese Studies Cr. 3**

Internships in Japanese studies allow students to apply the knowledge they have acquired through the Japanese program and to gain practical experience in their scholarly and professional areas of interest. An internship can also allow students to explore possible areas in which they would like to pursue a career. Offered Every Term.

**Prerequisite:** JPN 3010 with a minimum grade of D-

## KHS - Kinesiology, Health and Sport Studies

**KHS 1000 Contemporary Issues in Sport, Exercise, and Health Sciences Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry

Survey of selected topics in Kinesiology, including exercise science, health, physical education, athletic training and sports studies; a focus on current issues and related industry careers. Offered Fall, Winter.

**KHS 1010 Wellness at Wayne Cr. 1**

**Satisfies General Education Requirement:** Wayne Experience

Integrates information of eight dimensions of wellness with campus resources and encourages healthful living for WSU students. Class will include regular meetings at various campus locations and will involve physical activity sessions. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Freshman.

**KHS 6540 Workshop in Kinesiology, Health and Sport Studies Cr. 1-3**

Exploration of topics of current interest for the profession. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.

**Repeatable for 12 Credits**

**KHS 7990 Special Problems in KHS Cr. 1-3**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**KHS 7999 Master's Essay and Project Direction Cr. 3**

Development and review of essay or project. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**KHS 8540 Theories of Health Behavior Cr. 3**

Overview of select social and behavioral theories used to understand health-related behaviors and develop interventions. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**KHS 8700 Research in the Psychosocial Aspects of Physical Activity Cr. 3**

Development of in-depth understanding of psychosocial aspects of research in physical activity (exercise, sport, leisure activity). Offered Winter.

**Restriction(s):** Enrollment limited to students with a class of Doctorate; enrollment is limited to students with a major in Kinesiology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree; enrollment is limited to students in the Department of Kinesiology, Hlth & Sport Std.

**KHS 8750 Internship in Kinesiology, Health and Sport Studies Cr. 1-8**

Professional experience in public or private institutions relevant to student's field of specialization. Initial plan of involvement and final evaluation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$16

**Equivalent:** SAM 8750

**Repeatable for 8 Credits**

**KHS 8800 Social Ecological Theories for Health Cr. 3**

Doctoral level course designed to provide an overview of social and behavioral theories related to health. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Kinesiology; enrollment limited to students in a Doctor of Philosophy degree.

**KHS 8850 Physical Activity and Health Interventions Cr. 3**

Doctoral level course designed to provide an overview of physical activity and health interventions developed and tested across different populations. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Kinesiology; enrollment limited to students in a Doctor of Philosophy degree.

**KHS 8999 Master's Thesis Direction Cr. 1-8**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**KHS 9600 Doctoral Seminar in Kinesiology, Health and Sport Studies Cr. 3**

Introduction to active programs of research in the field of kinesiology; research presentations and discussion by faculty, guest lecturers and students. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree; enrollment is limited to students in the Department of Kinesiology, Hlth & Sport Std.

**KHS 9601 Professional Seminar Cr. 1**

Critical examination, presentation, and discussion of current interest in kinesiology and health. The emphasis is on interdisciplinary communication and presentation skills. Offered Every Term.

**Restriction(s):** Enrollment limited to students in a Doctor of Philosophy degree.

**Repeatable for 6 Credits**



# KIN - Kinesiology

## **KIN 2560 Individual Problems in Kinesiology Cr. 1-3**

Solving a specific problem under the guidance of the divisional staff. Offered Fall, Winter.

**Repeatable for 4 Credits**

## **KIN 3000 Professional Perspectives in Kinesiology and Exercise Science Cr. 3**

Synopsis of the academic, professional, and career perspectives of the Exercise and Sport Science major as well as the concepts and applications of the science of exercise, kinesiology, wellness, leadership, assessment, and internships. Offered Fall, Winter.

## **KIN 3400 Lifespan Growth and Development Cr. 3**

Study of change in motor behavior from infancy to older adulthood. Competency in: ability to formulate a developmental perspective, knowledge of changing behavior across life-span, knowledge of factors affecting motor development, ability to apply knowledge in instructional and recreational settings. Offered Every Term.

## **KIN 3540 Cultural Foundations of Kinesiology Cr. 3**

Introduction to cultural competence and cultural issues in physical activity, exercise, sport, and fitness for kinesiology and health care professionals. Offered Every Term.

## **KIN 3550 Motor Learning and Control Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Study of motor skill acquisition and motor control with applications to physical activity. Focus on cognitive processes and neural mechanisms which contribute to motor learning and control. Satisfies General Education program Writing Intensive requirement for kinesiology majors. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

## **KIN 3580 Biomechanics Cr. 3**

Application of knowledge of human physical structure and function in the analysis and appreciation of human movement; theory and practice of human movement analytic techniques. Offered Every Term.

**Prerequisites:** BIO 2870 with a minimum grade of C and KIN 3000 with a minimum grade of C

## **KIN 5100 Anatomical and Physiological Bases of Physical Activity Cr. 3**

Basic anatomical and physiological principles that have direct application to physical activity programming in the K-12 school setting and in community-based physical activity settings. The course will include practical application experiences to illustrate the theoretical knowledge base. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

## **KIN 5210 Movement Education Cr. 3**

Advanced study of elementary movement education through and in-depth analysis of Graham's movement skill themes. Study of movement concepts, skill themes, curriculum design, and the implementation of activities in a practical application. Students will also investigate research supporting the inclusion of movement education in quality physical education and physical activity programs. Offered Fall.

**Prerequisites:** KIN 5200 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students with a class of Unranked Grad, Junior or Senior; enrollment is limited to Graduate or Undergraduate level students.

## **KIN 5350 Exercise Science Internship Cr. 4**

Supervised experience in health and exercise programs with various populations at approved sites. Offered Every Term.

**Prerequisites:** KIN 6320 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the College of Education.

**Fees:** \$16

**Repeatable for 8 Credits**

## **KIN 5360 Senior Research Project Cr. 1-5**

Students conduct scientific research in exercise science; review of literature, data collection, assisting with data transformation, help with formal presentation of written or oral materials of findings from the study. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**Repeatable for 5 Credits**

## **KIN 5520 Sport Psychology Cr. 3**

History, personality, psychology of injury; theories of motivation, arousal, and anxiety; competition and cooperation, feedback, reinforcement and intrinsic motivation. Team dynamics, group cohesion, communication and leadership processes, psychological qualities and skills (such as goal setting, imagery, concentration). Unhealthy sport behaviors, burnout, over-training. Psychology of youth sport; character development. Offered Fall, Winter.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and PSY 1010-5999 with a minimum grade of C

## **KIN 5523 Physical Activity and Exercise Psychology Cr. 3**

Introduction of physical activity and exercise psychology from a multi-theory perspective. Determinants, well-being and interventions in physical activity, physical education and exercise settings will be explored through a broad spectrum. Offered Fall, Winter.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and PSY 1010-5999 with a minimum grade of C

## **KIN 5550 Health and Physical Education for the Elementary School Teacher Cr. 3**

Broad content knowledge of developmentally appropriate physical education and health education for children in grades K-6. Offered Every Term.

## **KIN 5770 Physical Activity Leadership Internship Cr. 7**

Individually arranged, supervised, educational and professional experience at an approved on-campus or off-campus based internship site. Opportunities to organize and conduct physical activity leadership responsibilities under close supervision. Through this type of exposure, the student will receive practical, on-the-job experience in one or more types of physical activity leadership. Offered Winter.

**Restriction(s):** Enrollment limited to students with a class of Unranked Grad, Junior or Senior; enrollment is limited to Graduate or Undergraduate level students.

## **KIN 6100 Methods of Group Training Cr. 3**

Provides a comprehensive overview of the group exercise industry and instructional strategies for safe group exercise training for various populations and differing environments. Offered Fall, Winter.

**Prerequisites:** KIN 6300 with a minimum grade of C

**KIN 6110 Motor Learning and Development Cr. 3**

Principles and practices that affect the learning and development of motor skills from birth to early adulthood. Study of theories of motor development, motor learning, and motor control; motor skill classification and games classification; developmental and motor learning stages; methodological considerations including how to measure and assess motor learning in field-based situations; and professional applications of the motor learning and development in physical education and physical activity programming. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**KIN 6120 Strength and Conditioning Cr. 3**

Provides a comprehensive overview of strength and conditioning with an emphasis on the exercise sciences, nutrition, program design, organization and administration, measurement, and evaluation. Offered Every Term.

**Prerequisites:** KIN 6300 with a minimum grade of C and KIN 3580 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**KIN 6150 ECG Interpretation Cr. 3**

This course provides students with an understanding of ECG and how to interpret static and dynamic ECG strips. It gives the opportunity for students to gain a basic knowledge of ECG and how to recognize normal and abnormal ECGs. Offered Winter.

**Prerequisites:** KIN 6300 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Unranked Grad, Junior or Senior; enrollment is limited to Graduate or Undergraduate level students.

**KIN 6160 Pharmacology for the Physical Activity Professional Cr. 3**

Provides students with an understanding of the concepts of pharmacology, how drugs work, and different pharmacologic actions and adverse effects that drugs produce. Offered Winter.

**Prerequisites:** KIN 6300 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**KIN 6210 Physical Activity and Cognition Cr. 3**

An overview of physical activity as it relates to cognitive functioning across the lifespan. Exploration of measures of physical activity, neuropsychological test batteries assessing various domains of cognitive functioning. Review studies examining the effect of physical activity on cognition and its underlying mechanisms. Offered Winter.

**Prerequisites:** KIN 5523 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Unranked Grad, Junior or Senior; enrollment is limited to Graduate or Undergraduate level students.

**KIN 6300 Exercise Physiology I Cr. 3**

Basic physiological concepts as they relate to exercise and human performance. Practical applications incorporated into the laboratory component. Offered Every Term.

**Prerequisites:** KIN 3000 with a minimum grade of C, KIN 5100 with a minimum grade of C, or BIO 2870 with a minimum grade of C

**KIN 6310 Exercise Physiology II Cr. 3**

Metabolic, neuromuscular, cardiovascular, and respiratory adjustments to acute and chronic exercise in health and disease, including body composition and weight control, nutritional considerations, and the effects of different environments on exercise performance. Offered Every Term.

**Prerequisites:** KIN 6300 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the College of Education.

**Equivalent:** PSL 6010, PT 6310

**KIN 6320 Fitness Assessment and Exercise Prescription Cr. 3**

Provides physiological principles of physical fitness, including the assessment of physical fitness and exercise prescription guidelines.

Offered Every Term.

**Prerequisites:** (BIO 2870 with a minimum grade of C or KIN 5100 with a minimum grade of C) and KIN 6300 with a minimum grade of C

**KIN 7580 Biomechanical Analysis of Motor Activity Cr. 3**

Principles and practice in the analysis of human movement. Selected methods of analysis are used in demonstrations and lab experiences. Students complete a biomechanical analysis project on an appropriate human motor skill. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**KIN 8530 Motor Learning Cr. 3**

Examination of research in motor learning and performance. Relation of the nervous system and other physiological mechanisms to motor behavior and other conditions which affect the acquisition of motor skill: perception, motivation, psychology of motor behavior. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

## LAS - Latino/Latina and Latin American Studies

**LAS 1410 Latino/a Studies Seminar Cr. 1**

First year seminar on Latino/a cultural studies topics. Offered Every Term.

**Repeatable for 6 Credits**

**LAS 1420 Introduction to Interdisciplinary Latino/a Studies Research Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Interdisciplinary introduction to the issues, concepts, and debates concerning the study of Latin American and Latino/as in the U.S. Offered Winter.

**LAS 1900 History of Colonial Latin America Cr. 3**

**Satisfies General Education Requirement:** Historical Studies, Social Inquiry

The Spanish and Portuguese conquests in the Americas; the multi-racial and class social structures they established as colonies, and the movements for independence, 1492-1822. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** HIS 1900

**LAS 1910 Latin America from Independence to the Present Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Global Learning Inquiry, Historical Studies, Social Inquiry  
Latin America from early nineteenth century to the 1980s. Major themes include: 1) colonial pasts and political independence; 2) state formation, and the construction of identities at local and national levels; 3) elite and popular relations, including cases of rebellion, revolution, and state repression; 4) forms of capitalist development and transformations in class relations, ideologies of economic development, and linkages to the United States. Offered Yearly.

**Equivalent:** HIS 1910

**LAS 2100 Chicano/a Literature and Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Diversity Equity Incl Inquiry, Global Learning Inquiry  
Examination of Chicano/a literature. Themes and figures in a social and historical context. Offered Every Other Year.

**Equivalent:** SPA 2400

**LAS 2110 Puerto Rican Literature and Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Diversity Equity Incl Inquiry  
Examination of Puerto Rican literature. Themes and figures in a social and historical context. Offered Every Other Year.  
**Equivalent:** SPA 2500

**LAS 2250 AfroLatino/a History and Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
Interdisciplinary introduction to the history and culture of AfroLatinos/as in the U.S. from the perspective of the African Diaspora in the Americas. Offered Winter.  
**Equivalent:** AFS 2250

**LAS 2410 History of Mexico Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry  
Historical development of Mexico and the Mexican people from the Spanish conquest to the present. Interaction of political, social, economic and cultural influences. Offered Yearly.  
**Equivalent:** HIS 2440

**LAS 2420 History of Puerto Rico and Cuba Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry  
Historical development of Puerto Rico and Cuba from the pre-Columbian period to the present. Interaction of political, social, economic and cultural influences. Offered Intermittently.  
**Equivalent:** HIS 2420

**LAS 2430 History of Latino/as in the United States Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Historical development of people of Hispanic descent in the United States from the early nineteenth century to the present. Cultural conflict, and interaction of political, social, and economic forces. Offered Yearly.  
**Equivalent:** HIS 2430

**LAS 3000 Special Topics in Latino/a and Latin American Studies Cr. 3**

Selected, specialized and/or topical studies in Latino/a and Latin American studies. Topics to be announced in Schedule of Classes. Offered Fall, Winter.

**LAS 3431 Revolutionary Movements in Latin America Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry  
This course examines revolutionary movements in twentieth-century Latin America with special emphasis on Central America, the Caribbean, and the Southern Cone. The course also explores the relationship between these movements, U.S. involvement in the region, and the Latin American diaspora. Offered Fall.  
**Equivalent:** HIS 3431

**LAS 3540 Cultures and Societies of Latin America Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Global Learning Inquiry  
Latin American social structures and cultural variation, history, and relationship to the United States. Themes include class, race, ethnicity, gender, religion, globalization, and immigration to the United States. Offered Intermittently.  
**Equivalent:** ANT 3540

**LAS 3610 Seminar in Latino/a Urban Problems Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences  
Historical and current issues in economics, politics, and culture involving the multi-racial and multi-ethnic Latino/a population of the United States. Offered Intermittently.

**LAS 3710 Learning About Your Community Through Research Cr. 4**

Blend of participatory, in-service, and classroom work to enhance undergraduate research skills by linking social science theories and concepts to hands-on community-based learning opportunities. Offered Fall.  
**Restriction(s):** Enrollment is limited to Undergraduate level students.  
**Equivalent:** SOC 3710

**LAS 3800 Spanish for Heritage Learners Cr. 3**

Review of grammar and composition for Spanish heritage learners. Conducted entirely in Spanish. Offered Intermittently.  
**Prerequisites:** SPA 2025 with a minimum grade of C  
**Equivalent:** SPA 3800

**LAS 3990 Directed Study Cr. 1-3**

Special topics are addressed by students and faculty. Offered Fall, Winter.  
**Repeatable for 9 Credits**

**LAS 5231 The Conquest in Latin America Cr. 3**

Varying perspectives on European conquests in Latin America. Offered Intermittently.  
**Equivalent:** HIS 5231

**LAS 5560 Spanish American Cultures and their Traditions Cr. 3**

Spanish America before and after the discovery of the New World. Art, music, customs, contemporary institutions, through films, records, newspapers, gallery visit to Detroit Institute of Art, and the text. Offered Every Other Year.  
**Prerequisites:** SPA 3300 with a minimum grade of C  
**Equivalent:** SPA 5560

## LAT - Latin

**LAT 1010 Elementary Latin I Cr. 4**

Introduction to the grammar, syntax and vocabulary of the language, and introduction to the culture of the ancient Romans. Offered Fall.  
**Fees:** \$5

**LAT 1020 Elementary Latin II Cr. 4**

Continuation of LAT 1010, with increasing emphasis on reading ability. Offered Winter.  
**Prerequisites:** LAT 1010 with a minimum grade of D-  
**Fees:** \$5

**LAT 2010 Intermediate Latin Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry  
Review of Latin grammar, and readings from selected Roman prose authors such as Cicero and Caesar. Offered Fall.  
**Prerequisites:** LAT 1020 with a minimum grade of D-  
**Fees:** \$5

**LAT 2020 Intermediate Latin II Cr. 4**

Introduction to genre; poetic language, meters, sociological and historical context; Catullus, Horace, Ovid, Vergil. Offered Winter.  
**Prerequisites:** LAT 2010 with a minimum grade of D-  
**Fees:** \$5

**LAT 3210 Latin Poetry Cr. 4**

Intermediate-level course for reading representative samples of poetry by prominent Latin authors. Offered Yearly.  
**Prerequisites:** LAT 2020 with a minimum grade of D-  
**Repeatable for 12 Credits**

**LAT 3220 Latin Prose Cr. 4**

Intermediate-level course for reading representative samples of prose by Latin authors. Offered Yearly.  
**Prerequisites:** LAT 2020 with a minimum grade of D-  
**Repeatable for 12 Credits**

**LAT 5000 Latin for Graduate Students Cr. 1-4**

Basic grammar and vocabulary of Latin; leads to reading of continuous passages of poetry and prose in Latin. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**LAT 5300 Readings in Roman History and Culture Cr. 1-3**

Readings in Latin primary sources that are relevant to the associated CLA course (which is taught in English). Offered Every Term.

**Prerequisites:** CLA 5000-6XXX with a minimum grade of D- (may be taken concurrently) and LAT 3000-6XXX with a minimum grade of D-

**Repeatable for 6 Credits**

**LAT 5810 Roman Historians Cr. 4**

Selected readings from Tacitus, Livy, Caesar or Sallust illustrating the Roman rhetorical and ethical analysis of republican and imperial history. Offered Intermittently.

**Prerequisites:** LAT 3000-3999 with a minimum grade of D-

**LAT 5850 Epic Cr. 4**

Readings in Latin of the works of epic poets such as Ennius, Vergil, Lucan, Statius and others. Offered Intermittently.

**Prerequisites:** LAT 3000-3999 with a minimum grade of D-

**LAT 5990 Directed Study Cr. 1-4**

Directed independent research in depth on a topic or author not treated in the regular Latin offerings, culminating in a course paper. Offered Every Term.

**Repeatable for 8 Credits**

**LAT 6100 Latin Prose for Learning and Teaching Cr. 3**

Online course for future and current teachers of K-12 Latin. The grammar and syntax of Latin prose of the Republican period, through selected readings from authors such as Cato, Cicero, Caesar, Sallust, and Nepos; focus on narrative prose rather than oratory. Composition exercises to reinforce the study of grammar and stylistics. Course covers ways in which teachers can incorporate prose composition into their classes as exercises in fluency, and as a way to teach grammar in order to prepare their students for standardized tests in Latin. Students will prepare and share lesson plans. Web course. Offered for graduate credit only. Offered Spring/Summer.

**Prerequisites:** LAT 3210 with a minimum grade of D- (may be taken concurrently) and (LAT 3220 with a minimum grade of D- (may be taken concurrently) or LAT 3150 with a minimum grade of D- (may be taken concurrently))

**Restriction(s):** Enrollment is limited to Graduate level students.

**LAT 6500 Roman Epistolography Cr. 4**

Social, literary, and historical significance of the letters of such writers as Cicero, Pliny and Seneca. Offered Intermittently.

**Prerequisites:** LAT 3000-3999 with a minimum grade of D-

**LAT 6840 Roman Drama Cr. 4**

Study of Roman comedy and tragedy through study of comedies of Plautus or Terence, or tragedies of Seneca. Studies in the early history of Roman drama may include readings in the literary remains of Accius, Pacuvius, and Naevius. Offered Intermittently.

**Prerequisites:** LAT 3000-3999 with a minimum grade of D-

**LAT 6890 Roman Satire Cr. 4**

Readings in the works of satirists such as of Horace, Persius and Juvenal. Offered Intermittently.

**Prerequisites:** LAT 2020 with a minimum grade of D-

**LAT 7810 Studies in Latin Poetry Cr. 4**

Study of a major poet or genre of poetry. Topics to be announced in Schedule of Classes . Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**LAT 7820 Studies in Latin Prose Cr. 4**

Study of a major prose author or prose genre. Topics to be announced in Schedule of Classes . Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**LAT 7999 Master's Essay Direction Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**LAT 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## LDT - Learning Design and Technology

**LDT 2015 Introduction to Learning Design and Technology Cr. 3**

Exploration of the field including its history, foundational knowledge, and the skills and attitudes required to be a professional. Students will create their professional development journey by applying design theories, principles and best practices. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LDT 3115 Instructional Design Cr. 3**

Explores broad conceptions of instructional design including all activities involved in generating intentional learning and performance improvement experiences. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LDT 3125 Evaluation Techniques and Tools Cr. 3**

Evaluation techniques and tools for learning design and technology based on formative and summative evaluation approaches. Students will learn to select appropriate evaluation techniques and design effective evaluation tools to generate feedback and facilitate improvement. Offered Yearly.

**Prerequisites:** LDT 3115 with a minimum grade of C

**LDT 3135 Practical Project Management Cr. 3**

Foundational skills, knowledge, and practice of agile project management for instructional designers using process frameworks. Students will learn the application of methods, tools, and techniques aligned with the Project Management Institute (PMI) standards. Offered Yearly.

**Prerequisites:** LDT 3115 with a minimum grade of C

**LDT 3145 Interactive Course Design Cr. 3**

Design, implementation, and evaluation of digital learning products based on theory and evidence-based practices. Students will use modern development tools to create engaging and interactive digital learning products. Offered Yearly.

**Prerequisites:** LDT 3115 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LDT 4135 Engaging Presentation and Facilitation Strategies Cr. 3**

Knowledge and delivery skills for conducting professional presentations in multiple settings and the facilitation of small and large group sessions. The focus is on the communication process, audience analysis, preparation, and selection of content and support materials. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.



**LDT 4145 Video and Games for Learning Cr. 3**

Design, implementation, and evaluation of serious games based on theory and evidence-based practices. Students will use emerging multimedia production tools for engaging videos and serious game-based learning products. Offered Yearly.

**Prerequisites:** LDT 3115 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LDT 4155 Simulations for Learning Cr. 3**

Design and development of models and interfaces for simulations, including devices, linear/discrete, XR, and branching scenarios. Offered Yearly.

**Prerequisites:** LDT 3115 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LDT 4165 UX Design for Learning Cr. 3**

Application of user experience (UX) design principles and processes to create a meaningful learning experience. Students will use modern UX tools to design and create an interactive, evidence-based learning experience. Offered Yearly.

**Prerequisites:** LDT 3115 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LDT 4195 Mobile Learning Technologies Cr. 3**

Design, implementation, and evaluation of mobile learning products based on theory and evidence-based practices. Students will use emerging multimedia production tools to create engaging and effective mobile learning products. Offered Yearly.

**Prerequisites:** LDT 3115 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LDT 4235 Directed Study in Learning Design and Technology Cr. 1-4**

Supervised individual learning experience design or research project which is outside the scope of formal courses. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Education.

**Repeatable for 8 Credits**

**LDT 4900 Advanced Instructional Design Cr. 3**

Application of learning design theories, principles and techniques to create a meaningful design product that meets learner needs. Students will engage in a 15-week design challenge, working in design teams employing empathic design with an authentic client who requires a specific design deliverable. Offered Yearly.

**Prerequisites:** LDT 3115 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LDT 4915 Capstone in Learning Design and Technology Cr. 3**

A capstone learning experience situated in the learning design ecosystem. Apply accumulated learning experiences to execute a viable instructional solution and develop designer identity. Offered Fall, Winter.

**Prerequisites:** LDT 4900 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to Undergraduate level students.

**LDT 4920 Internship in Learning Design and Technology Cr. 4**

Supervised training under faculty or professional mentor. Students will gain experience in the demonstration of analysis, instructional design, evaluation, project management, and performance improvement. Offered Fall, Winter.

**Prerequisites:** LDT 4915 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major, minor, or concentration in Learning Design and Technology; enrollment is limited to Undergraduate level students.

**LDT 6135 Technology Applications in School Administration Cr. 2-3**

Use of technology tools by school administrators; factors related to leadership and research in technology integration. Also offered online. Offered Fall.

**Repeatable for 3 Credits**

**LDT 7111 Design Studio I Cr. 4**

Exploration of design thinking, learning design, and empathic design to generate meaningful learning experiences that address the needs of specific learner audiences. Students will create detailed design plans and prototypes that demonstrate appropriate application of relevant learning theories and best practices. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7112 Design Studio II Cr. 4**

Application of learning design theories, principles and techniques to create a meaningful design product that meets learner needs. Students will engage in a 15-week design challenge, working in design teams employing empathic design with an authentic client who requires a specific design deliverable. Offered Fall, Winter.

**Prerequisite:** LDT 7111 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7130 Facilitating Digital Learning Cr. 4**

Design, development, facilitation, and evaluation of various learning activities for diverse learners. Students will learn to facilitate learning activities in a range of digital learning settings such as mobile, blended, online, virtual, formal, informal, and ubiquitous. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7140 Interactive Course Design Cr. 4**

Design, development, implementation, and evaluation of digital learning products based on research and theory. Students will use modern development tools to create engaging, interactive, digital learning products. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7145 Needs Assessment and Analysis Cr. 4**

Examination and application of needs assessment and analysis concepts, approaches, methods, and procedures across various levels (societal impact, organizational outcomes, human performance, and knowledge/learning). Illustrates evidence and processes required for performance improvement intervention selection in a variety of settings, particularly the workplace and educational settings. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7150 Evaluation of Learning and Performance Cr. 4**

Evaluation of learning and performance interventions that link to stakeholders, decision-making, and performance needs. Students will learn the identification of measurable indicators and alignment of methodology to derive actionable performance improvement recommendations. Offered Winter.

**Prerequisites:** LDT 7145 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7180 Message Design for Learning Cr. 4**

Analysis and application of principles of perception, message design, and foundation research for publication of print and electronic materials. Includes use of color, shape, typography, and page and screen design principles. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7210 Emerging Technologies for Digital Learning Cr. 4**

Exploration, demonstration, and integration of emerging technologies in digital learning including online, blended, mobile, formal and informal learning contexts. Students will learn about innovative learning technologies and how to integrate them in varied digital learning contexts. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7220 Mobile Learning Technologies Cr. 4**

Design, development, implementation, and evaluation of mobile learning products based on research and theory. Students will use emerging multimedia production tools to create engaging, interactive, and instructionally-sound mobile learning products. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7230 Video, Simulation, and Games for Learning Cr. 4**

Design, development, implementation, and evaluation of serious games based on research and theory. Students will use emerging multimedia production tools to create evidence-based and engaging videos, simulations, and serious game-based learning products. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7240 Learning in Organizations Cr. 4**

Provides an introduction to an organizational scope for learning and performance. Students will apply theory and concepts in human resource management, talent development, and human performance technology. Offered Yearly.

**Prerequisites:** LDT 7150 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7310 UX Design for Learning Cr. 4**

Application of user experience (UX) design principles and processes to create a meaningful learning experience. Students will use modern UX tools to design and create an engaging, interactive, instructionally-sound learning experience. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 7400 Capstone Project Cr. 2**

A capstone learning experience situated in the learning design ecosystem. Apply accumulated graduate learning experiences to execute a viable instructional solution and e-Portfolio. Offered Fall, Winter.

**Prerequisites:** LDT 7112 with a minimum grade of B and LDT 7150 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 8100 Critical Issues in LDT Scholarship Cr. 4**

Critically analyze and synthesize key issues and concepts in the scholarship of Learning Design and Technology (LDT) demonstrated by written, oral, and visual communication. Students will develop an understanding of the research scholar's role in LDT and self-assess personal development as an emerging scholar. Offered Every Other Year.

**Prerequisites:** LDT 7111 with a minimum grade of B, LDT 7112 with a minimum grade of B, LDT 7145 with a minimum grade of B, and LDT 7150 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 8110 Theory and Research in LDT Scholarship Cr. 4**

Demonstrate critical analysis, synthesis, and application of theories relevant to Learning Design and Technology (LDT) research through written, oral, and visual communication. Students will refine their understanding of the research scholar's role in LDT and self-assess personal development as theory-driven researchers. Offered Every Other Year.

**Prerequisites:** LDT 8100 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 8120 Practicum in Learning Design and Technology Cr. 1-9**

Supervised training with a professional mentor. Students will gain experience in the demonstration of research methods, analysis, instructional design, evaluation, project management, and performance improvement. Offered Fall, Winter.

**Prerequisites:** LDT 7112 with a minimum grade of B or LDT 7150 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**LDT 8130 Directed Study in Learning Design and Technology Cr. 1-6**

Supervised individual research project which is outside the scope of formal courses. Offered Fall, Winter.

**Prerequisites:** LDT 7112 with a minimum grade of B or LDT 7150 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**LDT 8135 Technology Applications in Central Administration Cr. 3**

Use of technology tools and data by central administrators; factors related to central office leadership and research in technology integration. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Education.

**LDT 8320 Performance Consulting and Analysis Cr. 4**

Practical application of principles of performance consulting to solve problems in large and small organizations. Topics include: role of performance consultant, identifying business needs, assessing performance, contracting techniques, managing the performance improvement process. Also offered online. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 9105 Conducting Research in Learning Design and Technology Cr. 4**

Design, development, and execution of a small-scale research study in Learning Design and Technology (LDT). Students will complete and present a LDT study to demonstrate scholarship skills. Offered Every Other Year.

**Prerequisites:** EER 7000-9999 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**LDT 9110 Advanced Research Seminar and Practicum Cr. 4**

Course designed for advanced doctoral students in Learning Design and Technology; however it is also appropriate for students in other disciplines. Students should have completed almost all of their coursework in their major, and preferably also their work in EER. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

## LED - Language Education

**LED 5300 Teaching Chinese as a Second Language Cr. 1-3**

Introduction to basic teaching grammar and sound rules and general teaching methodology. Offered Winter.

**Prerequisites:** CHI 3100 with a minimum grade of D-

**Equivalent:** CHI 5300

**LED 6500 Teaching World Languages in Elementary and Middle Schools: Methods III Cr. 3**

Approaches and techniques; review of theory and practice relevant to young learners. Students teach mini-lessons and prepare materials based on national standards and age-appropriate methodologies. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.

**LED 6510 Second Language Acquisition and the Teaching of Grammar Cr. 3**

Seminar and intensive review of major models of applied sociolinguistics and psycholinguistics; second language acquisition research and teaching of grammar in K-12 education. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.

**LED 6520 Teaching English as a Second Language/Foreign Language: Methods I Cr. 3**

Methods and techniques; fundamental theory and practice; English as an international/intranational language. Students micro-teach lessons and prepare teaching materials which emphasize the listening and speaking language skills. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.

**Repeatable for 6 Credits**

**LED 6530 Teaching English as a Second Language/Foreign Language: Methods II Cr. 2-3**

Methods and techniques; English as an international/intranational language. Students micro-teach lessons and prepare teaching materials which emphasize the reading and writing language skills. Offered Yearly.  
**Restriction(s):** Enrollment limited to students in the College of Education.

**LED 6555 Integration of Language and Content in Language Teaching Cr. 1-3**

Examination and evaluation of instructional strategies used to teach content and develop a second language in specific content/language area instruction. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Repeatable for 3 Credits**

**LED 6565 Assessment in Language Teaching Cr. 1-3**

Instruments, techniques, and strategies in the assessment, placement, and evaluation of second language instruction, including language learners in K-12 and post-secondary education. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Repeatable for 3 Credits**

**LED 6580 Culture as the Basis for Language Teaching Cr. 2-4**

Culture examined in a multidisciplinary theoretical framework, to provide students with objective relativistic and holistic attitude about human diversity, enabling them to relate to pupils in urban areas. Offered Every Other Year.

**Repeatable for 4 Credits**

## LEX - Law

**LEX 5000 Law in Social Context Cr. 3**

Covers several substantive areas, with a particular focus on property in both its traditional common-law form (like owning a house) and in its newer statutory contexts (like intellectual property – for example, owning a patent). What does it mean to own something? What makes someone a legal owner of something? What kinds of things can be owned, what things cannot, and why? Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LEX 5010 Law and Harm Cr. 3**

Presents the basic concepts of law and the fundamentals of legal analysis, giving in-depth attention to the fields of tort and criminal law and using them to examine how law conceives of, regulates, and adjudicates questions of harm. When can you sue a person or a group for harming you? On the street or in a business, what makes something a crime, and why do we prosecute and punish crimes the way we do? Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LEX 5020 Legal Procedure Cr. 3**

Examines the lifecycle of a case in court. Discusses how a lawsuit begins with the filing of a complaint and how it ends in a judicial order, and it covers everything else that happens along the way—with special attention paid to things like negotiation and settlement. Introduces legal concepts like “due process of law,” and explores the procedural similarities and differences between civil cases, criminal cases, and administrative proceedings. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LEX 5030 Law and Transactions Cr. 3**

This course introduces students to the legal theories, concepts, and rules related to the formation, interpretation, performance, breach, and termination of contractual relationships between and among individuals and entities, primarily private parties. Offered Yearly.

**LEX 5100 Law and Regulation Cr. 3**

This course introduces students to the modern regulatory state and the methods of legal analysis used within different legal and political institutions in the United States. The course will explore the roles and structure of administrative agencies and procedures, and examine how different approaches to regulation require the ability to interpret statutes, assess arguments and evidence with an understanding of multiple disciplines, and engage in comparative institutional analysis. Offered Yearly.

**LEX 5110 Access to Justice Cr. 3**

The U.S. civil legal systems are complex. To navigate these systems generally requires a lawyer. But lawyers are expensive. Legal aid attorneys, who provide free legal services for low-income persons, are overworked and there simply are not enough. This course engages students in understanding the significant access to justice issues in the U.S. and developing ways to address these issues. Utilizing historical overviews, the course will explore legal and political systems and how they intersect with access to justice. Students will explore how race, gender, sex, age, wealth, and other status determine access to justice. Offered Yearly.

**LEX 6100 Civil Procedure A Cr. 3**

Structure of the judicial system in the United States and the process of civil litigation from the commencement of an action through appeal. Subjects considered include jurisdiction, the relationship between state and federal courts, pleading, discovery and other pre-trial devices, trial and appellate review. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6101 Civil Procedure B Cr. 3**

Structure of the judicial system in the United States and the process of civil litigation from the commencement of an action through appeal. Continuation of LEX 6100. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6200 Contracts A Cr. 3**

General principles of the law of contracts; definitions of contract; illegality, mistake, frustration, impossibility; statute of frauds, interpretation, the parol evidence rule; performance and breach; rescission; repudiation and discharge. Remedies, including damages, specific performance, injunction and restitution. All topics considered from viewpoints of both common law and statute. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6201 Contracts B Cr. 3**

General principles of the law of contracts; definitions of contract; illegality, mistake, frustration, the parol evidence rule; performance and breach; rescission; repudiation and discharge. Remedies, including damages, specific performance, injunction and restitution. All topics considered from viewpoints of both common law and statute. Continuation of LEX 6200. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6300 Criminal Law Cr. 3**

General doctrines of criminal liability as they relate to the moral and social problems of crime; definitions of principal crimes and defenses to criminal prosecution, both common law and statutory; limitations on the use of criminal sanctions. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6400 Legal Research and Writing Cr. 2**

Analysis of legal problems and the use of legal materials, through discussion, written assignments, and personal conferences. Preparation of a trial brief and oral argument on a selected civil or criminal case before a court composed of faculty or members of the local bench and Bar. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6500 Property Cr. 4**

Basic course in real property, which will include selected materials from some of the following areas: historical introduction to real property; personal property transfers by gift, finding, adverse possession; modern law of possessory estates, including non-freehold estates, and landlord and tenant relationships; concurrent estates; restraints upon the use of land; conveyancing and effects of the Recording Acts. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6600 Torts Cr. 4**

Legal principles underlying wrongs not based on contract, arising from intentional or negligent conduct and including strict liability; the nature of particular wrongs, including injuries to the person, to reputation, to real or personal property, and to interference with business or family relations. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6700 Constitutional Law I Cr. 3**

Problems arising under the Constitution of the United States, with particular attention to the nature of judicial review in constitutional cases and to the role of the judiciary in umpiring the federal system. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6800 Professional Responsibility and the Legal Profession Cr. 2**

Conflicts of interest; the attorney's standard of care, fiduciary duty, the organization of bar associations, the attorney's duty to the court and the community; the attorney's responsibilities in trial, and in unilateral actions and negotiations. The duty of disclosure of adverse data, the development of group legal services, and of legal services to the poor, and the responsibility of the bar in these areas. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 6900 The Regulatory State Cr. 3**

Introduction to statutes and agency decisions and the central role they play in modern government. Nature of statutes and agency regulations, how they are generated, and how they are interpreted and applied. Justifications for modern regulation, the modern administrative state, the incentives that influence the behavior of the various actors, and the legal rules that help structure the relationships among legislatures, agencies and courts. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7001 Accounting for Lawyers Cr. 2**

Basic concepts of bookkeeping and generally-accepted accounting principles; background to help read and interpret financial statements; auditor's role and accounting issues that arise in business planning, in litigation, and in managing financial investments. May not be taken for credit by those who completed more than two undergraduate accounting courses or a graduate course in financial accounting. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7006 Administrative Law Cr. 3-4**

Functions and behavior of administrative agencies; constitutional and statutory constraints on agency operation. Government role in formulating and enforcing policy, administering of public benefit programs, and awarding of licenses. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7014 Taxation of Corporations: Acquisitions and Restructuring Cr. 4**

Satisfies the professional skills requirement. Explores the tax rules for corporate stock or asset acquisitions and restructurings (including reorgs, spins and loss carryovers), and S corporations or consolidated returns through the lens of a simulated firm tax group working on a series of client projects (using an actor as client). Each student will work on at least two team projects during the semester, preparing written and oral presentations for, and briefing the client on, issues related to the team project topic. Team projects include: prepping a client for and negotiating an acquisition, drafting a private letter ruling request, preparing an internal memorandum outlining the pros and cons of restructuring choices, researching and writing a tax opinion letter, and outlining advantages of various entity choices for future transactions. Offered Yearly.

**Prerequisite:** LEX 7821 with a minimum grade of D or LEX 7061 with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7015 Advanced Torts Cr. 2**

This course will focus on torts not involving physical injury, such as misrepresentation, defamation, invasion of privacy, interference with business relations, and misuse of legal procedure. These causes of action, which provide remedies for economic, reputational, or emotional harm, are not ordinarily covered in the four-hour Torts course required in the first year. They have become burgeoning areas of potential liability due to the emergence of electronic communications. An effort will be made to integrate substantive doctrine and practice implications with legal, economic, political and social theory. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7016 Alternative Dispute Resolution Cr. 2**

Forms of non-trial dispute resolution: arbitration, mediation, and negotiation—their various permutations and substantive applications. Factors affecting choice between dispute resolution processes, differences in design and structure, relative costs, quality of participant performance, accountability for results, privacy of proceedings, role of legal norms and lawyers, due process considerations, availability of judicial review; tactics and strategies employed in arbitration, mediation and negotiation. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7021 American Indian Law Cr. 3**

This course explores the foundational principles and doctrines governing the legal and political relationship between the United States and Indian tribes. Major topics in the course include the history of federal Indian law and policy, congressional plenary power, principles of interpretation of laws and treaties regarding Indians, the nature of tribal sovereignty, and jurisdiction in Indian country. In examining these topics, we will discuss laws and policies concerning tribal justice and legal systems, gambling and taxation in Indian country, and the Indian Child Welfare Act. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.



**LEX 7023 Animal Law Cr. 3**

Animal law encompasses human-animal interactions and evaluation of competing interests within the context of traditional areas of law (e.g., veterinary malpractice, expansion of anti-cruelty statutes to include farm animals, damage for death of / injury to companion animals, disputes over custody of companion animals in divorce or separation, landlord-tenant housing disputes, the inclusion of animals in wills and trusts, and constitutional issues such as standing). It also encompasses the current legal status of animals as living property and explores whether this status is antiquated and needs re-evaluation to reflect societal beliefs and values. Course will consider these traditional areas of law, groundbreaking laws enacted by other countries, as well as theories for the expansion of consideration and rights. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7026 Antitrust Cr. 2-4**

Government control of trade practices and industrial market structures which inhibit the competitive process; monopoly, oligopoly, mergers, cartel practices, distribution arrangements, resale price control, franchising patent licensing, foreign commerce and price discrimination under the Sherman, Clayton, Federal Trade Commission, and Robinson-Patman Acts. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7039 Automotive Law Cr. 2**

The Automotive Law course will offer an overview of the automobile industry and related law, and cover the basic theories and legal implications of the automotive franchise system, automotive marketing and advertising, automated, autonomous and connected vehicles, automotive products liability, consumer issues including privacy, cybersecurity and automotive safety, and the over-arching role of artificial intelligence. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7051 Bankruptcy and Creditors' Rights Cr. 3**

Problems arising when debtors are in financial difficulty, including the principal state remedies of unsecured creditors such as attachment, garnishment, and enforcement of judgments; Chapter 7 bankruptcy liquidations; Chapter 13 wage-earner plans; and Chapter 11 reorganizations. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7058 Bioethics and the Law Cr. 3**

Role of law in shaping, analyzing and resolving conflicts that arise in the interplay between medicine, biotechnology, ethics, social history, and cultural evolution. Topics include reproductive rights and genetic technologies, maternal fetal decision making, medical decision making, definitions of death, death and dying decisions, regulation of research on humans, interdisciplinary decision making, and access to health care. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7060 Business Planning Cr. 4**

Problems involving common business transactions, including choice of entity to conduct business; organization, financing, and operation of a corporation; restructuring of business enterprises. Corporate, tax, securities law, and financial matters; role of business lawyer in counseling and planning business transactions. Relationship between the corporation and its shareholders. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7070 Child Abuse and Neglect Cr. 2**

Introduces students to state and federal laws governing the child protection and child welfare systems. Topics addressed will include: defining abuse and neglect; mandatory reporting; child protection investigations and limitations thereon; emergency removal and less burdensome alternatives; adjudicatory hearings and proof of abuse and neglect; dispositional hearings and powers; permanency planning and long-term placements; termination of parental rights; right to counsel; and the duties of lawyers for children in abuse and neglect cases. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7075 Child, Family, and State Cr. 3**

Aspects of children in legal system. Legal relationship between children, their parents, and government (federal, state, local, and tribal); rights of these parties and relationships between them. Education, medical care, children's rights, concept of legal parenthood, parental rights (and termination thereof), adoption, juvenile justice process. Concentration on constitutional and policy analysis as opposed to examination of rules and regulations in the different areas. Students graded on class participation, several short written assignments, and take-home final examination. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7121 Conflict of Laws Cr. 3**

Principles, rules and methods thought to underlie the resolution of multi-state problems. Jurisdiction and enforcement of judgments of other states. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7123 Constitutional History in the United States to 1860 Cr. 4**

The emergence of distinctively Anglo-American legal cultures in the Atlantic basin and then in North America, from early exploration and settlement until the early stages of Civil War. Special attention is paid to law's ongoing relationship to state making, the shifting terrain of citizenship, the emergence of capitalism, and the construction within society of racial, gendered, and class distinctions. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7126 Constitutional Law II Cr. 4**

Individual rights under the Constitution of the United States. Freedom of speech, religious freedom and equal protection. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Equivalent:** LEX 7829

**LEX 7127 Constitutional Litigation Cr. 3**

This course will track the jurisdictional and constitutional basis and the history of claims by individuals against government officials for constitutional violations. It will explore the limits and constraints on the actions of officials and the policies of governments. How must the plaintiffs plead and prove such cases and how can defendants defend their actions and policies. Since 1961, victims of official misconduct – ordinary private persons – have had the ability and opportunity to enforce the United States Constitution in federal courts. This has for decades provided American lawyers, courts and litigants with important power, the power to directly shape American democracy in unique ways. The study of this system of constitutional enforcement is essential to an understanding of American constitutional jurisprudence. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7128 Consumer Law Cr. 2-3**

An introduction to law specially directed at the rights and obligations of consumers. The consumer marketplace is regulated by a series of discrete statutes and regulations, such as the Federal Trade Commission Act (and accompanying regulations), Truth-in-Lending Act, Fair Credit Reporting Act, Equal Credit Opportunity Act, Fair Debt Collection Practices Act, and lemon laws. This course provides an overview of these special rules and their interpretation and enforcement. As such the course provides an introduction to the role of administrative agencies and the interpretation of statutes and regulations. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7131 Consumption Based Tax Cr. 2**

The Consumption Based Tax course will examine the foundational principles of a consumption based tax like a sales or value added tax, and will address global consumption tax systems, focusing on value added tax (VAT). The course highlights innovations incorporated in national VATs, including real property, financial, agriculture and the public and non-profit sectors. Students will examine the extent to which a VAT can apply at a national, subnational, and multinational level, and the problems that might be encountered. Offered Intermittently.

**Prerequisite:** LEX 7816

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7136 Copyright Law Cr. 3**

Law of copyright and related doctrines protecting literary, musical and artistic works. Nature of rights and kinds of works protected, doctrine of fair use, pre-emption problems, and problems posed by new technologies. Emphasis on 1976 Copyright Act and its relation to issues such as home videotaping, photocopying and non-profit performance of protected works. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7141 Corporate Finance Cr. 3**

Economic and legal problems arising in connection with financing decisions of publicly-held corporations, including valuation of the enterprise and its securities, determination of securities structure and dividend policy, capital structure (including problems relating to debt), and acquisition strategies. Federal securities regulations and selected topics. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7156 Corporations Cr. 2-4**

Relationships between owners and directors of a corporate enterprise; different types of stock ownership and the corresponding rights in profits and control; consolidation and merger; distinctive features of the closed corporation. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7161 Criminal Procedure: Investigation Cr. 3**

Constitutional requirements for arrests, searches, seizures, electronic surveillance, and interrogations. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7166 Criminal Procedure: Adjudication Cr. 3**

Operation of the criminal justice system from the defendant's first appearance in the court through the trial, and to post-conviction remedies, including a study of bail, the preliminary hearing, the grand jury, voir dire, discovery, double jeopardy, joinder, and habeas corpus. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7172 Developing the Commercial Real Estate Project Cr. 3**

Real estate development: laws and requirements affecting the development of commercial properties, including the law of contracts; real estate interests, such as mortgages, easements and encumbrances, zoning laws, environmental laws, building codes and requirements and other regulatory laws. Topics include: purchase and sale contracts, title and survey matters, due diligence investigations, closing processes, construction, financing, and leasing. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7185 Disability Law Cr. 3**

This is a survey of American law as it relates to people with disabilities, with particular emphasis on the Americans with Disabilities Act ("ADA"), Section 504 of the Rehabilitation Act ("Section 504"), and the Individuals with Disabilities Education Act ("IDEA"). The focus of the course is on access to employment, government programs and services, places of public accommodation, housing, healthcare, education, and insurance. Other topics addressed include civil commitment; guardianship, conservatorship, and less restrictive alternatives; and income support programs. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 7190 Domestic Violence and Law Cr. 2**

Grounded in the historical and social context of domestic violence, as well as the dynamics of abusive relationships; this course will examine the response of the legal system to complex issues raised by domestic violence. The course will focus on criminal and family law issues and their intersections. Also explored will be current issues in the law as well as cultural contexts of interpersonal and gender-based violence. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7201 Education Law Cr. 3**

Survey of education law with emphasis on public education. Historical development of education law in the U.S. as well as topics of current interest: tenure, academic freedom, school discipline, school financing, home-based schooling, state regulation of private schools, church-state relationships, and desegregation in public education. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7205 Employee Benefits Law Cr. 3**

This course is a survey course intended to provide students with a strong grounding in the major laws affecting employment-based benefit plans, including the Employee Retirement Income Security Act (ERISA) and the Internal Revenue Code. The course will address both retirement plans (including traditional defined benefit plans and common types of defined contribution plans such as 401 (k) plans and welfare benefit plans (including health and life insurance and disability plans). Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7216 Employment Discrimination Cr. 2-3**

Federal constitutional and statutory guarantees of freedom from invidious discrimination in employment. Thirteenth and Fourteenth Amendments, Title VII of the Civil Rights Act of 1964, the Reconstruction Civil Rights Acts, 42 U.S.C. 1881, et seq., the Equal Pay Act of 1963, and the Age Discrimination in Employment Act of 1967. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7221 Employment Law Cr. 2-3**

Legal rights and responsibilities of employees (excluding rights provided by anti-discrimination laws and the NLRA); statutory and common-law limitations on the employer's right to discharge; protection of employee privacy and reputation; laws governing wages and hours, occupational safety, unemployment compensation, workers' compensation, and employee benefits. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7226 Entertainment Law Cr. 2-3**

Legal and business issues in the entertainment industries, including those related to sound recordings, music publishing, literary publishing, films, television, the Internet and other new media. Readings and discussions: representing talent, drafting and negotiating contracts, remedies for breaches, and rights of publicity. How the entertainment industries and their economics work. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7228 Energy Law Cr. 3**

Introduction to energy law and regulation in the United States. Principles of rate regulation of public utilities and the division of jurisdiction between federal and state governments. Emerging trends such as promotion of energy efficiency and renewable energy. (This course does not cover traditional oil and gas law.) Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7231 Environmental Law Cr. 2-3**

Environmental law in common-law, statutes, constitutional issues, administrative and international law. Coherent legal analysis of environmental problems and active legal remedies, rather than specialized instruction in pollution controls and the like. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7236 Equitable Remedies Cr. 2-3**

Survey of the equitable remedies available for the vindication of substantive rights, which includes injunctive and restitutionary relief as well as the general treatment of equitable relief in contract, tort and criminal actions. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7266 Evidence Cr. 2-4**

General principles relating to the proof of questions of fact in civil and criminal trials, including competency, relevancy, and materiality of evidence; judicial notice, presumptions; burden of proof; competency of witnesses, rules relating to examination and cross-examination of witnesses; weight and sufficiency of evidence. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7301 Family Law Cr. 2-3**

Entry into marriage; legal treatment of couples in marital and non-marital relationships; divorce, including custody, alimony and property distribution, and the role of the attorney; procreation; illegitimacy; rights and responsibilities of children and parents with respect to each other and to the state; child abuse and neglect; and adoption. When offered for two credits, considerably less time is devoted to children's issues. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7306 Federal Courts and the Federal System Cr. 2-3**

Interrelationship of state and federal law in our legal system from the point of view of the federal courts and the Congress. Emphasis on the politics, history, and philosophy of federalism, rather than on procedures. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7311 Taxation of Partnerships Cr. 2-3**

This course covers the federal income taxation of partnerships and partners, with significant focus on the governing statutory provisions and regulations and the mechanics of partnership tax accounting. Topics will typically include the transfer of property to a partnership; determination of partners' distributive shares of items of income, gain, loss and deduction; partnership recourse and non-recourse debt; partnership cash or property distributions; and transfers of interests in partnerships. The course will also cover more general policy issues, including such topics as the concepts motivating the aggregate or entity approach, concepts of tax avoidance and the ethical issues arising in connection with the use of partnerships in tax shelter transactions, and the advantages and disadvantages of partnerships compared to alternative forms of business taxation such as C corporations and pass-through S corporations. Offered Yearly.

**Prerequisite:** LEX 7816 with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7319 Firearms Law and the Second Amendment Cr. 2**

This course focuses on legal issues affecting weapons. We will explore the origins, dynamics, and evolution of the Second Amendment, and discuss Heller, McDonald, and the difficult questions that have arisen in their wake. This course also considers other topics, including First Amendment issues, state constitutions, and various state and federal laws that limit who can own weapons, where they can be carried, and how they must be treated. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7321 Food and Drug Law Cr. 2**

This course is designed to provide students with a basic working knowledge of domestic laws regulating food, drugs, cosmetics/biologics/ blood, and medical devices. It has an administrative law overtone, providing and understanding of the legislative and regulatory processes through an in-depth look at the relationship between the Food and Drug Administration (FDA), industry, consumer interest groups, and Congress. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 7326 Foreign Direct Investment Cr. 3**

History of, and policy justifications for, protection of foreign direct investment (FDI); the substantive international law regarding the protection of FDI; the process for resolving disputes between foreign investors and host states through international arbitration; and critiques of the existing legal framework for the protection of FDI. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7331 Franchise Law Cr. 2**

Provides a survey of franchise and product distribution law, taking into account federal and state legislation and case law. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7353 Health Care Organizations and Finance Cr. 3**

Legal responses to problems of health care costs, access and financing from both public and private perspectives. Registration of insurance and managed care, developments in federal ERISA preemption, changing business structures, and antitrust enforcement. Medicare and Medicaid financing, rules prohibiting self-referrals, and standards policing fraud and abuse. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7354 Health Care Quality, Licensing and Liability Cr. 3**

Legal responses to problems of health care quality and medical errors. State licensing of health care professionals and institutions, self-regulation, and tort liability for physicians, hospitals and managed care organizations. Basic introduction to health care institutions, the particulars of malpractice litigation, and proposals for tort reform. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7371 Immigration and Nationality Law Cr. 2-3**

Immigration, its history and development; entry into the United States, and alien status and adjustment to status; deportation and relief from deportation; exclusion and relief from exclusion; nationality and citizenship. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7384 International Commercial Arbitration Cr. 3**

Course follows the life cycle of an international commercial arbitration, including: drafting and enforcing arbitration agreements; appointment and challenge of arbitrators; conduct of the proceedings; drafting of awards; review and enforcement of awards by courts at the seat of arbitration and beyond. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7401 International Aspects of US Taxation Cr. 2-3**

United States taxation of non-resident aliens and foreign entities, foreign tax credit, determination of source of income, impact of tax treaties, earned income exclusion, tax effect of mode of operation and country of incorporation, and statutory and non-statutory tax devices available for international operations. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7404 International Business Transactions Cr. 3**

This course introduces a wide range of problems and issues that private business entities may encounter in doing business across national borders. Topics include international sales, import and export regulations, cross-border IP protection and technology transfer, foreign direct investment, business ethics, and dispute settlement. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7406 International Finance: Transactions, Regulation, and Policy Cr. 3**

Legal problems associated with flow of capital across national borders. Topics include international financial transactions, regulation of international capital markets, regulation of international banking and financial services, emerging market debt crisis, role of International Monetary Fund, reform of international financial system. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7408 International Law Cr. 3**

Basic legal concepts applied by international tribunals and courts of the United States to the relations between independent nations. The nature and sources of international law; the use of treaties; international organizations; and practices respecting recognition, territory, nationality and jurisdiction. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7409 International Litigation Cr. 3**

Issues arising in civil cases in American courts in which international parties, evidence, and issues are present. Subjects include personal jurisdiction, service of process abroad, conducting discovery abroad, suing foreign sovereigns and governmental officials, forum non conveniens and international arbitration. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7411 International Protection of Human Rights Cr. 2-3**

The main international and regional legal instruments and procedures for the protection of human rights. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7413 International Prosecution of State Actors Cr. 3**

Legal and political aspects of new processes by which one-time state officials (such as former Yugoslav President Slobodan Milosevic, former Chilean dictator Augusto Pinochet, and former East German leader Egon Krenz) and their followers have been subjected to prosecution in international and foreign legal systems. Basic elements of transnational criminal law; controversial questions of principle and policy such as United States opposition to the new International Criminal Court; concerns about retroactive punishment; respect for amnesties that have contributed to ending civil conflicts. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7418 International Trade Law Cr. 3**

Regulation of international trade relations. Focus on Law of the World Trade Organization (WTO) and its interaction with domestic regulation of international commerce. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7419 Interviewing and Counseling Cr. 2-3**

This course introduces students to interviewing and counseling theory, and helps students develop skills needed to effectively and efficiently interview and counsel clients in both litigation and transactional matters. Topics addressed and skills developed include active listening, phrasing and sequencing questions, eliciting timelines, probing for details, clarifying objectives, identifying options and discussing their consequences, and helping clients make final decisions. The course makes extensive use of role-playing exercises. Each student conducts a full-length simulated interview at mid-semester, and a full-length simulated counseling session towards the end of the semester. When offered for three credits, the course will include a forty-hour fieldwork component in which each student will interview and counsel actual clients who are seeking free legal help from one of the Law School's clinics or from a faculty-approved public interest externship field placement. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.



**LEX 7422 Islamic Law Cr. 3**

This course will survey the universe of Islamic law from the vantage point of a beginner to the field. The readings and class discussions will broadly cover the following: (1) classical Islamic jurisprudential theory, (2) substantive aspects of family and criminal law, (3) the intersection of Islamic law and the American legal system, and (4) the place of American-Muslims in the framework of American constitutionalism. Because law - of any variety - does not operate in a vacuum, discussions will proceed with reflection on prevailing sociopolitical realities such as global terrorism, jihadist movements, Islamophobia, misogyny, and racism. The student will also be asked to draw from the offerings of philosophy, critical race theory, postcolonial studies, security studies, and feminism. The aim is for course participants to develop a more textured understanding of Islamic law and to be better positioned to understand the debates surrounding its relevance and practice. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 7424 Introduction to the Legal System of the United States Cr. 2-3**

General introduction to the institutions and processes involved in lawmaking and legal interpretation in the United States, with a focus on lawmaking at the federal level. Topics include: federal legislative process, precedent and the common-law method, federal administrative rule-making, separation of powers, and judicial review. Sources of law produced by these processes and the development of research strategies with respect to these sources. Course is also designed to provide foreign LL.M students (all of whom write a Master's Essay to complete the LL.M. program) with an overview of the principal forms of legal scholarship in the American academy. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7426 Jurisprudence Cr. 2-3**

Analysis of important legal notions such as law, sanction, rule, and sovereignty; relations between law and morals as seen particularly in the development of natural law and legal positivism and in the development of the notion of legal responsibility. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7435 Juvenile Delinquency Cr. 2**

Introduction to the juvenile justice system. Topics include: juvenile court jurisdiction over delinquents and status offenders; pretrial criminal procedure in the juvenile justice context; screening and diversion; pretrial detention; waiver of juvenile court jurisdiction; procedural rights at trial; dispositional decisions. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7501 Labor Law Cr. 2-4**

Legislative, administrative and judicial regulation of labor relations. The scope of national labor legislation; the protection of the rights of self-organization and the designation of bargaining agents; the negotiation and administration of the collective agreement; the legality of strikes, picketing and boycotts; employer interference with concerted activities; and the relations between unions and their members. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7511 Land Use Cr. 2-3**

Allocation of land use in the urban environment by both private agreement and governmental order. Problems involved in the development and effectuation of community planning; goals by means of conservation, clearance, and renewal; zoning, variances and exceptions; housing code enforcement, subdivision control, eminent domain; relocation. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7514 Law, Authority, and Resistance Cr. 3**

This course addresses, in both theoretical and practical terms, the relationship between legal and political obligation: When, if ever, do individuals have a moral obligation to obey the law because it is the law? What count as valid justifications of civil disobedience, conscientious refusal, or insurrection? When can governmental authority justifiably depart from "the rule of law"? When can individuals be held criminally accountable for egregious acts committed under unjust prior regimes? The course combines classics of the history of political thought with contemporary theoretical writings and contemporary discussions of topical questions (e.g., jury nullification, emergency measures, transitional justice). Particular attention will be paid to the special obligations of lawyers who are asked to validate immoral practices (e.g., "enhanced interrogation methods" in the Global War on Terrorism). Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 7517 Law, Policy and International Development Cr. 3**

Explores various law-based strategies for achieving economic and political development in poor countries. One influential school of thought claims that capitalism will not flourish in developing nations until there is a long-term, national commitment to reform property laws. Other scholars and development specialists insist that instituting the rule of law is the linchpin to attaining international development. Yet others insist that all law reform efforts are pointless unless access-to-justice issues are first addressed. This course is designed to investigate these claims and allow each student to come to her or his own conclusions about how law is most effectively used as a strategy for promoting political and economic development. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 7518 Law of Armed Conflict Cr. 3**

History and current state of the law governing recourse to force (*jus ad bellum*) and the law governing the application of force (*jus in bello*). Contemporary *jus ad bellum* topics include: prohibition of the use of force in international relations, self-defense, unilateral intervention in internal conflicts and humanitarian crises, as well as collective action relating to security and humanitarian crises. Contemporary *jus in bello* topics include: legal obligations relating to targeting, selection of weapons, status and treatment of prisoners, and protection of civilians during hostilities and occupation. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7519 Law of Policing Cr. 2**

This course is an introduction to the law of policing. In this course, students will study the development of laws and policies related to policing in the United States. In addition to the regular course work, students will be asked to conduct focused research on a particular facet of modern policing. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 7520 Advanced Legal Writing: Legal Drafting Cr. 3**

Legal Drafting provides students with an opportunity to develop transactional drafting skills. It focuses on writing techniques involved in drafting transactional documents most often assigned to summer interns and first and second year associates. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7536 Appellate Advocacy Cr. 3**

Research and analysis of complex legal problems involving legislative history and administrative regulations. Class discussion on advanced research, development of strategy, and organization and writing as an advocate. Students write an appellate brief. May not be taken on pass/no credit basis. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7541 Legislation Cr. 3**

The legislative process and its use as an instrument of change; legislative drafting revision, interpretation and implementation. The appropriations process; role of and control of lobbying; operation of the legislative process and its effect on policy formulation; conduct of Congressional investigations, and effects of separation of powers doctrines. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7581 Local Government Law Cr. 2**

Law as an instrument for governing urban areas. Distribution of decision-making power between private and public persons, between state and local governments and among various local governments. Local finance, decentralization, annexation and municipal incorporation. Exploration of possible reform by means of metropolitan government or federal assistance. The lawyer's role in formulating governmental policy in major urban complexes. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7590 Maastricht Exchange Program Cr. 1-4**

Students take courses offered in the Maastricht Exchange Program. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**Repeatable for 4 Credits**

**LEX 7595 Law Exchange Program Cr. 1-6**

Intended for students participating in approved study abroad programs of study. Offered Every Term.

**LEX 7603 Mergers and Acquisitions Cr. 2-3**

Mechanics of an acquisition, including: (1) state corporate codes relevant to acquisitions, dissenting shareholder remedies, listing requirements, and federal security law affecting the mechanics (proxy, tender offers, public offerings); (2) successor liability, transfers of assets; (3) acquisition documents (confidentiality agreements, letters of intent, basic agreements, closing); (4) legal duties of board of directors and dominant shareholders (decision to sell or acquire, conflicts of interest, attempts to block takeovers, shareholder value); (5) disclosure requirements of federal and state securities law; (6) accounting and tax issues (definition of tax-free reorganization, accounting for mergers and acquisitions). Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7604 Mock Trial Workshop Cr. 2**

Introduces students to basic evidence concepts (e.g. relevance, competency, impeachment, hearsay, authentication) and helps student develop basic trial advocacy skills (e.g. how to develop persuasive case theories and themes, how to deliver opening statements and closing arguments, how to examine and cross-examine witnesses, how to lay a proper evidentiary foundation for testimony, how to introduce and use demonstrative evidence, how to refresh a witness's recollection, how to impeach a witness by using the witness's prior statements, how to make and respond to objections). The course is graded on an Honors-Pass-Low Pass-No Credit basis. Students who have taken Trial Advocacy (LEX 7836) are not eligible to take this course, and vice versa. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**Equivalent:** LEX 7836

**LEX 7606 Movement Lawyering Cr. 2**

This course is for students interested in learning how to create social change through collective action. The dual aims of the course are to enrich our understanding of the mechanics of social change and to critically examine the relationship between law, lawyers, and social movements. Together, we will develop a nuanced understanding of law as a complex tool that has the potential to both co-opt social movements and support liberation. We will take a historical and theoretical case-study approach, with emphasis on the Civil Rights and Black Power movements in the United States. We will also draw lessons from contemporary movement-building efforts. During the semester, guest speakers on the front lines of racial and economic justice movements here in Michigan will join us to share their insights and ground our discussion. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7616 Negotiation Cr. 2,3**

The 2 credit course is a comprehensive examination of various legal principles that affect negotiations, such as rights assessments, custom and practice, rule of contract construction, concepts of condonation, proper and improper conditions, as well as the effective use of evidence in the negotiation process. The course also explores strategic methods and techniques in which attorneys are frequently involved that affect the outcome of negotiations. Students will participate in mock negotiations. The 3 credit course will cover the material described above and will additionally address (1) the reintroduction of several topics (e.g., contract drafting, collaborative lawyering, use of mediation in negotiation), (2) the expansion of other topics (e.g., multicultural negotiation, the law of settlement), (3) enhanced processing of simulations, and (4) one or more contract drafting exercises. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7631 No-Fault Insurance Law Cr. 2**

Comprehensive review of Michigan's No-Fault Automobile Insurance Law, which governs all motor vehicle accidents in the State. Topics include: questions of coverage, medical and work loss benefits, coordination of benefits, exclusions, priorities, subrogation, and claims procedures. Negligence claims under the No-Fault Law also reviewed. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7651 Patent Enforcement Cr. 3**

Unique aspects of patent litigation. Policy issues; practice considerations in enforcing patents. Issues in approaching a patent infringement suit (who can file; when and where to file). Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7655 Introduction to Contemporary Patent Law Cr. 2**

Students will develop an understanding of the current state of patent law in the United States. Students will develop critical analysis skills in order to evaluate the standards by which inventions can be patented in the U.S. Patent and Trademark Office (PTO). Offered Intermittently.

**Restriction(s):** Enrollment limited to students in the Law School.

**LEX 7656 Patent Law Cr. 3**

Substantive patent and related trade secret law. Emphasis on nature of patent right; scope of coverage of patent system; issues of validity, infringements, inequitable conduct, patent-antitrust. Special issues relating to software, living organisms, and chemistry. Technical background not required. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7657 Patent Prosecution Cr. 3**

The Patent Prosecution course not only teaches students the art of writing patent applications, but also addresses the many aspects of practicing before the PTO. The first part of the course focuses on rules and techniques for investigating what is legally considered the background of the invention ("prior art"). The course introduces students to basic claim drafting concepts, techniques for writing a written description (or specification) of an invention, along with learning how to respond effectively to PTO Office actions according to PTO regulations found in the Manual of Patent Examining Procedure (MPEP). In order to draft patent claims and respond effectively to PTO Office Actions, it is important to understand the MPEP rules as well as the relevant case law. This course will also explore the inter partes post-grant proceedings and derivation proceedings available under the new America Invents Act. In addition, ethics and licensing will be briefly covered. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7658 Peacemaking in State Court Justice Systems Cr. 3**

Conflict involving youth, family, communities and institutions inexorably finds its way into state court justice systems. Once there, litigants find that institutional pathways available to them not only attach legal consequences to their actions, but more importantly, have longstanding effects on their lives, as well as the lives of others. This class introduces students to the emergence of one such path in state court justice systems: peacemaking. The introduction begins with the exploration of the roots of peacemaking from indigenous nations within our national border. Students then engage in exploring the practical application of peacemaking in state justice systems in family, probate, civil and criminal proceedings. Students conduct a mock trial in a subject area of their choosing through a traditional adversarial model, and then through a peacemaking approach. Finally, students explore emerging branches from peacemaking in state justice systems inside and outside the U.S. Offered Yearly.

**Prerequisite:** LEX 7266 with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7659 Political Theory of Public Law Cr. 3**

Legal restraints on exercise of public power as conceived in works of early modern theorists (e.g., Machiavelli, Locke, Montesquieu, and Madison), and as applied in constitutional arrangements that have emerged in a range of historical settings. Topics include: role of law in totalitarian political systems; emergency rule; comparative approaches to judicial review. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Equivalent:** PS 7580

**LEX 7660 Practicum in Dispute Resolution Cr. 3**

This course was designed to teach students the skills required as third party neutrals (mediators) in the facilitative mediation process. The curriculum includes discussion and lectures on other alternative dispute resolution (ADR) processes, but the main focus of the class will be facilitative mediation. Role play opportunities, observation, and practice experience will be provided as part of the class in order to provide students opportunity to work on practical skills in addition to learning mediation theory. Elements of the subject matter taught include the nature of conflict, how mediation fits within the ADR structure, understanding values and relationships embedded within the dispute resolution process, ethical standards of practice, mediation techniques, role and task of the mediator, and stages of the mediation process. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**Fees:** \$225

**Equivalent:** DR 7310

**LEX 7666 Pretrial Advocacy Cr. 3**

Adversary strategy and practice skills in the pretrial stages of litigation. Preparation of pleadings, interrogatories, requests for admission and document production requests. Students negotiate settlement of disputes, draft and argue motions, and take and defend depositions. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7676 Public Finance Law Cr. 2**

Legal principles involved in public finance transactions: municipal borrowing and debt; state law considerations: sources of authority for borrowing and repayment; effect of ultra vires borrowing, of procedural defects, municipal debt limitations, and other factors relating to power to incur municipal debt; traditional financing techniques; federal tax and securities law considerations; default and municipal bankruptcy; municipal bond market. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7680 Public Health Law Cr. 3**

Legal foundations of American public health system; struggle between individual liberties and governmental interest in providing for collective health and well-being of citizens. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7686 Race and the Law Cr. 3**

Impact of law on race relations and vice versa. Topics include: history and legal history, civil rights and equal protection, criminal law, affirmative action, employment, hate speech, education, interracial marriage and adoption, housing discrimination, emergence of Critical Race Theory in contemporary jurisprudence. Contemporary issues and solutions illuminated by historical problems and developments. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7689 Race, the Law and Social Change in Southeast Michigan Cr. 2-3**

Detroit is the most segregated metropolitan area in the country. Course examines role and limits of law in addressing issues of race, discrimination and equality in southeastern Michigan. From a legal and anthropological perspective, students study the efforts attorneys have made over the past century to create a region more consistent with American values of inclusiveness. Individual and class action lawsuits and other forms of policy advocacy, all addressing legal problems in southeast Michigan, examining litigation tactics and the role of expert testimony. History and social problems of the region examined from the perspective of the courtroom. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7701 Real Estate Financing Cr. 2-3**

Methods of financing the acquisition and improvement of residential and commercial real estate through the use of private sources of funds. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7725 Religious Liberty in the United States Cr. 3**

Relationship between church and state in the United States. First Amendment Free Exercise and Establishment Clauses; related state and federal statutes; matters of history, legal doctrine, and public policy. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7751 Advanced Sales and Leases under the UCC Cr. 2-3**

Advanced study in sales areas beyond first-year contracts course. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7756 Secured Transactions Cr. 3**

Basic study of Article 9 of the Uniform Commercial Code with particular attention to the law governing the creation and perfection of security interests in personal property and the relative priorities of interested parties; also attention to some of the following: goods-oriented remedies in Article 2, financing leases in Article 2a, bulk sales, effects of the Bankruptcy Code on secured transactions, and documents of title Article 7. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7761 Securities Regulation Cr. 2-3**

Analysis of current problems in federal and state regulation of transactions in securities. Offered Yearly.

**Prerequisite:** LEX 7156 with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7766 Sports and the Law Cr. 2-3**

Survey of legal issues presented by sports in America. Application of basic principles of antitrust and labor law, constitutional law, administrative law, contract law and tort law to sports. Regulation of professional sports labor markets, regulation of agent representation, sports franchises, leagues and the powers of commissioner's offices, and the regulation of intercollegiate sports. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7771 State and Local Taxation Cr. 2,3**

Introduces the constitutional and statutory framework of state and local taxation, with a concentration on the current topical issues involved in the taxation of multinational taxpayers and taxation of remote sellers. Corporate and income, sales and use, gross receipts and other excise taxes will be covered, as well as local income and property taxes. Coverage of investment incentives, legislative matters and policy will also be included. Offered Intermittently.

**Prerequisite:** LEX 7816 with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7800 State Constitutionalism Cr. 3**

This course will address some of the distinguishing features of state constitutions not shared with the parallel federal document. Among these features are elected judiciaries, part-time legislatures of plenary power, non-unitary executive branches, frequently employed amendment and revision procedures, and state powers over political subdivisions. Significant attention will be devoted to state judiciaries as the interpreters of state constitutions, including state courts' inherent powers, advisory powers, and relationships with federal and sister-state courts. State constitutions also protect civil liberties differently from the U.S. Constitution, both in kind and degree; these differences will be reviewed through readings in constitutional litigation. The course is not a survey of fifty different constitutions. Instead, it is designed to illuminate the common areas of inquiry in a theoretical field remarkably distinct from the study of the federal Constitution. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7806 Tax-Exempt Organizations Cr. 2**

Examines tax problems arising from activities of non-profit associations of a type usually subject to taxation. Offered Every Other Year.

**Prerequisite:** LEX 7816 with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7816 Taxation Cr. 1-4**

Interrelation between income tax policy and basic governmental and social institutions. Introduction to law of federal income taxation; the taxation of individuals. Basic application of these taxes; problems involved in transactions and situations which confront the lawyer in general practice; analysis and use of materials which permit their solution. Underlying problems of policy which have led to the tax law of today and which may be expected to require change in the tax law of tomorrow. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7821 Taxation of Corporations Cr. 4**

A detailed exploration of the federal income tax problems of corporations and their investors; an analysis of the statutory rules governing transactions between corporations and their shareholders, including tax-free incorporations, property and stock distributions, constructive dividend problems, stock redemptions; corporate reorganizations with a focus on corporate recapitalizations, dispositions of the assets of a corporation or of investor's interests in a corporation; liquidation problems; and the impact of judicial doctrines on corporate tax planning. Offered Every Other Year.

**Prerequisite:** LEX 7816 with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7826 Teaching Law in High School Cr. 3**

Students teach 20-25 sessions to a class of high school students, using a widely recognized high school text, Street Law. Students attend a weekly seminar which deals with teaching methods. Students will participate in and present model lessons in the seminar, prepare lesson plans and have field supervision of their teaching in the high school. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7827 Topics in Advanced Legal Research Cr. 2**

Covers complex research topics essential to successful legal practice and scholarship and builds upon the basic research skills and techniques learned in the required Legal Research and Writing course (LEX 6400). Its problem-solving approach gives students practical research experience that will enhance their ability to use legal, archival and social science information persuasively and cost-effectively. The scope is primarily limited to researching United States federal and state law. Offered Spring/Summer.

**Prerequisite:** LEX 6400

**LEX 7829 Law of the First Amendment: Freedom of Speech Cr. 2**

In-depth coverage of the First Amendment guarantee of freedom of speech, press, association and petition. Emphasis on the "law of the First Amendment" as it has developed through the decisions of the Supreme Court; how the "law of the First Amendment" operates in the context of actual litigation. First Amendment issues likely to arise in the United States today and tomorrow. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Equivalent:** LEX 7126



**LEX 7831 Trademarks and Unfair Competition Cr. 2-3**

Federal trademark statute, 15 U.S.C. section 1051 et. seq., state statutory and common law unfair competition, and the federal law of unfair competition and false advertising under 15 U.S.C. section 1125 (a). Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7836 Trial Advocacy Cr. 3**

Basic trial techniques taught through student performances of role-play exercises followed by critique. Mastering major trial skills in isolation: direct and cross examination, introduction of exhibits, impeachment, expert witnesses, opening and closing statements. Application of skills in simulated full criminal or civil jury trial. Offered Yearly.

**Prerequisite:** LEX 7266 with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Equivalent:** LEX 7604

**LEX 7841 Trusts and Decedents' Estates Cr. 4**

Intestate succession, wills and trusts, requisite elements of wills and express trusts, and procedural requirements for their creation; administration of decedents' estates and trusts; special rules relating to charitable and spendthrift trusts; trust forms as equitable remedial devices under resulting and constructive trust rules. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7888 United States Foreign Relations Law Cr. 4**

Constitutional and statutory doctrines that regulate the conduct of U.S. foreign relations. Topics include: distribution of foreign affairs powers between the three branches of government, status of international law in U.S. courts, scope of the treaty power, validity of executive agreements, preemption of state foreign affairs activities, and the political question and other doctrines regulating judicial review in foreign affairs cases; political influences on and policy effects of legal doctrines in this field. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Equivalent:** PS 6870

**LEX 7931 Water Law Cr. 2-3**

Categories of water bodies and public and private rights therein under the riparian and the prior appropriation systems. Consumptive and non-consumptive uses, management, and protection of the resource. Intergovernmental relations with respect to water resource allocation and management. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7941 White Collar Crime Cr. 3**

Substantive and investigative issues related to federal prosecution of business crimes. Balance between government powers to investigate white collar crime and the rights of corporate and individual investigatory targets in connection with criminal prosecutions of federal economic crimes. Problems related to parallel civil enforcement actions involving the same underlying conduct. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7951 Workers' Compensation Law I Cr. 2**

Overview of Michigan statute; discussion of "arising out of" and "in the course of employment," including the going to and from work doctrine. Analysis of the occupational disease provisions of the statute as compared to single event personal injury provisions. Study of specific loss. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7990 Directed Study Cr. 1-2**

A directed study may involve writing a paper, participating in a regularly-scheduled course for reduced credit, or other work of an academic nature. Subject matter and procedure are to be arranged prior to registration. Directed studies may not be elected on a pass-no credit basis. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 7995 Law Practicum Research Cr. 1**

Students enrolled in the Law Practicum Research participate in an employment experience directly related to their academic studies and concurrently consult with a supervising member of the full-time Law School faculty. An enrolled student must submit written work to the supervising faculty member that relates the employment experience to the student's academic studies and that includes consideration of the roles and responsibilities of practicing attorneys and strategic and ethical issues in the applicable field of law. Offered Every Term.

**LEX 7999 Special Topics Cr. 2-4**

Areas of current interest in the law. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8001 Antitrust and Trade Regulation: Current Issues Seminar Cr. 3**

Addresses current topics in antitrust and trade regulation, providing a mix of substantive knowledge and professional skills instruction. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8002 Access to Justice Seminar Cr. 3**

History, policies, practices and laws that demonstrate how our legal system addresses access to justice for people with economic needs or other restrictions that prevent them from using the system effectively. Seminar examines issues in both the criminal and civil areas. How lawyers are uniquely suited to improve access to justice. Career options to enhance access to justice, such as: following a public interest career, performing pro bono legal service for the poor, and exercising leadership in government and elsewhere to bring changes that enhance access to justice for all. Lectures, readings, research, site visits, and guest speakers. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8003 Reimagining Development in Detroit: Institutions, Law and Society Cr. 3**

Seminar course. Examination of contemporary problems of community development from a perspective of institutional economics; how tools and theories of institutional economics are applied to problems relevant to the City of Detroit. Students write research papers applying these tools to issues such as race and regionalism, role of faith-based organizations in community development, abandoned land and community gardens, structure of local governance, charter schools and the fate of public schools, opportunity-based housing, and state of health-care safety net providers. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8015 Asian Pacific American History and the Law : Perspectives on APA Civil Rights and Civil Wrongs Cr. 3**

This seminar explores the Asian Pacific American civil rights movement with an overview of how federal and state laws have affected the Asian Pacific American (APA) experience and presence in the United States, covering a variety of civil rights cases and civil wrongs against APAs. The seminar will cover the APA historical timeline, exclusion laws, alien land laws, World War II internment of Japanese Americans, affirmative action as it applies to APAs, civil rights and racial hate crime violence, APAs in the marriage equality movement, bilingual issues in education and in the workplace, post-9/11 issues, immigration law reform, the Hawaiian sovereignty movement, and the effort to change birthright citizenship and immigration laws, among other topics. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8029 Citizenship Seminar Cr. 3**

Legal understanding of citizenship. How has the concept of citizenship evolved over time? How do we (or should we) decide who is and is not a citizen in the U.S. and in other nations? If one is a citizen, what rights flow from that status? Completion of this seminar satisfies the Law School writing requirement. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8039 Contract Drafting Seminar Cr. 3**

Knowledge and skills necessary for sound drafting of agreements. Substantive issues of contract law and important drafting issues. Students draft several contracts for review and critique; final grade based on drafting and editing as well as participation in seminar meetings. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8044 Advanced Topics in Criminal Law and Procedure Cr. 3**

Focuses on the law governing, practice of, and debate about plea bargaining. Among the questions to be considered: Does plea bargaining serve society well? Is it on firm constitutional footing? What are the constitutional prerequisites for a valid guilty plea? Does plea bargaining work differently in state court and in federal court? In white collar cases and street crime cases? In high-level cases and low-level cases? What legal or extra-legal factors determine the outcome of a plea bargain? And finally, how does pervasive plea bargaining affect the role of the prosecutor, the defense lawyer, and the trial judge? This seminar can be used to complete the upper-level writing requirement. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8048 Current Topics in International Law Cr. 3**

Focus on new and controversial issues; topics change with each offering. Readings, class discussions, and paper. How international institutions function, justification for the norms they seek to enforce, and coherence of those norms with respect to theories of international society. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8051 Detroit Equity Action Lab: A Collaborative Study of Structural Racism Seminar Cr. 3**

This Seminar introduces students to notions of structural racism as it impacts the city of Detroit. Students will work collaboratively with members of the Detroit Equity Action Lab (DEAL) addressing racial equity in a wide range of sectors, such as civil rights, transportation, community development, health, education and housing. Students will develop awareness of the role and limits of law in addressing structural racism. In addition to examining the work of individual organizations, students will consider broader issues impacting racial equity and will explore interventions that might change public policy and public awareness as it relates to structural racism. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8067 Effective Oral Communication for Lawyers Cr. 2**

This course is aimed at helping students become more comfortable with, and more skillful at, oral communication (speaking) in all the forms that skill is employed by a lawyer. Topics to be covered will include the physiology of speech and sources of speech pathology (including respiration, phonation, resonance and articulation); aspects of non-verbal communication; techniques designed to deal with nervousness or "stage fright"; developing an understanding of oneself, one's material and one's "audience"; establishing rapport; organizing one's materials; use of humor and anecdotes; making communication interesting; active listening; and impromptu speaking. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8071 Environmental Law: Advanced Topics Cr. 3**

This seminar considers current and advanced topics relating to environmental law. The specific focus will vary according to the semester and instructor. Some versions of this seminar may be used to complete the upper-level writing requirement. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8075 Ethics of the Lawyering Experience Seminar Cr. 3**

Psychological and ethical dimensions of law and legal practice, explored through engagement with works of fiction and selected legal scholarship. Student writes weekly reaction paper. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8091 Fair Housing Seminar Cr. 3**

This seminar explores issues related to fair housing law in the United States. The course is discussion-based, with students expected to take an active participatory role in each class session. The following topics are among those we will discuss: housing discrimination and the federal Fair Housing Act; state and local fair housing issues, including the racialized history of housing development in Detroit; the intersection between fair housing and the emergence of the sharing economy (Airbnb, etc.); constitutional housing issues, including the criminalization of homelessness; and various relevant aspects of landlord-tenant law. Fair housing issues will be examined from a variety of perspectives, including those of tenants, landlords, government regulators, and neighborhood/homeowner associations. Offered Yearly.

**Prerequisite:** LEX 6500

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8101 Family Violence: Seminar Cr. 3**

Analysis of the utilization of the legal system to address issues of abuse within the family. Topics include: the response of the criminal justice system to various forms of family violence, such as marital rape, spouse abuse, and child abuse; use of tort and injunctive remedies; examination of new and proposed legislation relevant to these issues. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8141 International Environmental Law Seminar Cr. 3**

Students explore use of bilateral and multilateral treaties and other international mechanisms for dealing with international environmental problems; emphasis on United States - Canada international environmental law. In-class presentations, paper required. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8161 Legal Issues in U.S. - China Economic Relations Cr. 3**

This seminar explores contemporary legal issues in U.S.-China economic relations. It introduces China law and policy in their historical, political and economic contexts, and examines how the Chinese and US systems interact in impacting American businesses and consumers. Specific topics include trade, investment, finance, technology, human rights, national security and dispute settlement. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8171 Health Law: Advanced Topics Cr. 3**

Examines current legal issues related to health, such as applications of the law within and outside the health care system; contemporary debates on role of government and private sector in health; innovative proposals to use law, ethics and policy to improve health; and the role of law during public health emergencies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8190 International Women's Human Rights Seminar Cr. 3**

Evolution of women's rights as human rights. Students will examine women's human rights in the context of legal instruments such as the UN Convention to Eliminate Discrimination Against Women (CEDAW) and other international treaties, and in the jurisprudence of women's human rights in international tribunals. This course will also explore the role of global and regional human rights organizations in securing women's legal rights and analyze the current legal discourse on women's human rights and explore key issues in the light of specific world regions, cultures and religious traditions. Offered Fall.

**LEX 8197 Islamophobia and the Law Cr. 3**

This seminar will closely examine the law's role in endorsing and advancing Islamophobia – the rising form of animus broadly understood as hate or fear of Islam. This seminar will examine a range of doctrinal and policy issues tied to the broader phenomenon of Islamophobia, on a domestic, global, and comparative level. Completion of this seminar satisfies the law school writing requirement. Offered Intermittently.

**Prerequisite:** LEX 6300 and LEX 6700

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8241 Advanced Topics in Work Law Cr. 3**

Examines current and developing issues in labor and employment law. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8248 Law and Literature Seminar Cr. 3**

Connection between law and literature. Topics include: role of narrative in legal arguments and legal decision-making; role of narrative and law, respectively, in constructing identity; literary criticisms of the law and legal profession. Focus on stories of adoption, including: shifting definitions of parenthood; nature vs. nurture debate; issues of class, race, gender, and national identity. Novels, short stories, films, memoirs, and legal cases; authors include Charles Dickens, George Eliot, P.D. James, and Louise Erdrich. In-class presentations; paper required. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8256 Law in Cyberspace: Seminar Cr. 3**

Topics may include online speech (including regulation of harmful and sexually explicit speech); filtering and intermediary liability; virtual property; online contracts; trademarks and domain names; copyright; the problems that flow from asserting national laws in a medium with no national borders. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8263 Legal Change Seminar Cr. 3**

What is the relationship between law and social change? How effective are changes in legal doctrine in changing social practices? Under what conditions can we effectively use the law to promote social change? This course investigates these questions by studying the relationships among social movements, courts, legislatures, and other international and domestic institutions. Students will examine materials from actual legal reform movements, including equality in education and women's rights, and evaluate strategies for legal reform and their impact on statutory and decisional law as well as social practices. Offered Every Other Year.

**LEX 8264 Justice and the Law Cr. 3**

This seminar studies the question, "What is legal justice?" from recent influential traditions in American legal thought. We will begin with foundational materials regarding classical legal thought, legal formalism, legal realism, legal process theory, and legal liberalism. The course will also amplify marginalized voices, with an examination of critical legal studies, critical race theory, feminist legal theories, and LGBTQ+ legal theories. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8271 National Labor Relations Act: Current Problems Cr. 3**

Legal issues pending before the National Labor Relations Board and in the courts. Students act in place of NLRB and render opinions on critical labor law issues; read actual briefs in pending cases, discuss the cases, and vote on disposition and draft majority and dissenting opinions. Each student writes one majority and one concurring or dissenting opinion. Class discussions focus on NLRB decision-making process and judicial review of Board decisions; and on draft opinions of student Board panels. Grade is based on class participation as well as written work; students may elect to write papers based on legal issues discussed in class. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8300 Race and the Law: Advanced Topics Cr. 3**

This seminar will examine the role of the law in creating as well as maintaining race, racial hierarchies, and racial inequality. Contrary to the traditional view of racial subordination as solely a deviation from the liberal legal ideal, this course recasts the role of law as historically central to and complicit in upholding racial hierarchy as well as other hierarchies of gender, class and sexual orientation. The course will investigate these issues over the span of centuries, from the founding of the Americas to the present day. This course will explore oft-discussed issues at the intersection of race and law such as slavery, colonization, immigration, citizenship, nation building, national security, and affirmative action as well as less examined issues, such as sexual exploitation and unarmed police shootings. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8342 Sexual Violence and the Law Cr. 3**

This seminar introduces students to a range of legal areas in which sexual violence victims need legal assistance, with an emphasis on the civil legal issues that experiencing sexual violence creates for victims in areas like education, employment, family, housing, and immigration. The course is discussion-based, with students expected to take an active participatory role in each class session. The following topics are among those we will discuss: intersectionality and sexual violence; criminal rape law and its inadequacies; the Violence Against Women Act; civil protection orders; how to use privacy laws, tort laws, civil rights laws (Titles VII and IX, the Fair Housing Act, etc.) to address sexual violence victims' needs; legal remedies for specific populations of victims (immigration, military, prisons); cyber-harassment; and demand-side sex work/trafficking criminalization. The course provides a general grounding in the legal areas touched by experiencing sexual violence. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8345 Sex, Sexuality and the Law in the Contemporary United States Cr. 3**

The ways the law constructs people as sexual beings and regulates that being and her/his sexuality. Seminar course has four main objectives: 1) to deepen understanding of contemporary U.S. laws that address sex and sexuality; 2) to understand the ways in which individuals and groups are impacted by those laws; 3) to learn and apply aspects of critical legal theories in legal analysis; and 4) to strengthen written and oral legal analysis and communication. Workshop format; class contribution makes up a significant portion of the grade. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8351 Sports and Inequality Cr. 3**

This seminar will examine the legal and social implications of various forms of discrimination in both the professional and amateur sports contexts. Coverage will include a discussion of legal efforts to address discrimination in sports based on race, gender, disability, and sexual orientation. Topics include racial inequalities on the playing fields and in the front offices of amateur and professional sports, the impact of NCAA eligibility criteria, the effects and future of Title IX, gender segregation and exclusion in professional sports and sexual violence, sexual orientation discrimination in sports, and sports opportunities for people with disabilities. The final paper for this class may be used to satisfy the upper-level writing requirement. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8363 Tax Policy Seminar: Role and Impact of Congressional Oversight on Abusive Tax Strategies Cr. 3**

This seminar will examine the international tax rules, the abusive strategies, and the responses by Congress and foreign governments. We will use excerpts from Congressional hearings to explore the role of Congressional oversight in identifying the noncompliance with existing laws, the role of foreign governments in facilitating abuses and illegal behavior, and the need for legislative or administrative action to address some of the abuses. We will consider policy options to reduce the incentives for businesses to pursue these strategies. We will examine professional ethics and the role of lawyers and other professionals in structuring these abusive transactions. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8386 Seminar in Legal History Cr. 3**

Research seminar in legal history. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**Equivalent:** HIS 8050

**Repeatable for 6 Credits**

**LEX 8401 Urban Housing and Community Development: Seminar Cr. 3**

Legal, social, and economic aspects of urban housing and community development, including local, state and national programs and policies. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8505 Criminal Justice Externship Practicum Cr. 2**

Students perform 150 hours of unpaid work in a criminal prosecutor or defender's office. Students are assigned tasks similar to those performed by entry-level prosecutors and defenders. Students develop advocacy skills, legal drafting skills, law practice management skills, the ability to recognize and resolve strategic and ethical dilemmas, and the ability to learn from experience. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8506 Criminal Justice Externship: Colloquium Cr. 2**

Roles and responsibilities of criminal prosecutors and defenders, the judicial process in criminal cases, and strategic and ethical issues in criminal prosecution and defense. Substantial class time is devoted to professional skills instruction and to facilitated discussion and analysis of students' fieldwork observations and experiences. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8507 Judicial Externship: Practicum Cr. 2**

Students perform 150 hours of unpaid work in judicial chambers. Students are assigned tasks similar to those performed by judicial clerks. Students develop research, writing, and analysis skills, legal drafting skills, oral communication skills, law practice management skills, and the ability to learn from experience. Offered Every Term.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8508 Judicial Externship: Colloquium Cr. 2**

Students learn about the roles and responsibilities of judges and judicial clerks, judicial decision-making, and effective advocacy. Substantial class time is devoted to professional skills instruction and to facilitated discussion and analysis of students' fieldwork observations and experiences. Offered Every Term.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.



**LEX 8511 Lawyering in the Nation's Capital: Practicum Cr. 9-11**

Students perform 480-600 hours of unpaid work at approved placements in Washington D.C. and earn 9, 10, or 11 credits. Students are assigned tasks like those performed by attorneys in their offices. The Practicum is an opportunity for students to develop professional skills, including legal analysis and reasoning, problem solving, communication, teamwork, negotiation, and fact-finding. Students will also learn about important workplace issues such as time management, the professional culture of the office, professionalism, and giving and receiving feedback. Offered Winter.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Corequisite:** LEX 8512

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8512 Lawyering in the Nation's Capital: Colloquium Cr. 3**

In this externship course, students will explore the role of the Washington, D.C., lawyer and learn about the various entities, organizations, agencies, and individuals involved in making national public policy. Through a series of guest lectures and readings on the congressional process, advocacy, and agency rulemaking, the seminar will teach the legislative process, the role of oversight and of interest groups, and the inter-relationship among the three branches. Offered Winter.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Corequisite:** LEX 8511

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8515 Corporate Counsel Externship: Practicum Cr. 2**

Students perform 150 hours of unpaid work in corporate counsel offices of non-profit and for-profit entities for two credits. Students are assigned tasks similar to those performed by attorneys in corporate counsel or general counsel offices. The Practicum is an opportunity for students to develop professional skills, including legal analysis and reasoning, contract drafting, problem solving, communication, teamwork, negotiation, and fact-finding. Students will also learn about important workplace issues such as time management, corporate culture, professionalism, and giving and receiving feedback. Grading will be on an Honors, Pass, Low Pass, No Credit basis. Offered Every Term.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8516 Corporate Counsel Externship: Colloquium Cr. 2**

Students will learn about substantive issues encountered in an in-house legal department and the ethical responsibilities of in-house counsel. Substantial class time is devoted to professional skills instruction on topics such as working with outside counsel, conflicts management, contract drafting, and conducting internal investigations. Students will also participate in facilitated discussion and analysis of their fieldwork observations and experiences. Chief legal officers, general counsel, and senior managing attorneys will guest lecture in some classes. Offered Every Term.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8517 Holistic Defense Externship: Practicum Cr. 2**

Students perform 150 hours of unpaid work at a faculty approved placement site that focuses on holistic defense. Students are assigned tasks similar to those performed by entry-level attorneys at their placement sites. Projects will focus on the wide-ranging impact that contact with the justice system can have on an individual, and will involve collaborative work with various types of professionals, including social workers and attorneys with different legal expertise. The practicum is an opportunity for students to develop professional skills, including legal analysis and reasoning, problem solving, communication, teamwork, negotiation, and fact-finding. Students will also learn about important workplace issues such as time management, office culture, professionalism, and giving and receiving feedback. Offered Yearly.

**Prerequisite:** LEX 6800 (may be taken concurrently) and LEX 8518 (may be taken concurrently)

**Corequisite:** SW 6991

**Restriction(s):** Enrollment is limited to Law level students.

**LEX 8518 Holistic Defense Externship: Colloquium Cr. 2**

In this course, students will learn the knowledge and skillset necessary to become effective practitioners of holistic defense. Holistic defense is a multifaceted approach to legal representation that recognizes the social and legal challenges that drive many individuals into the criminal justice system, and the collateral or enmeshed consequences that may result from an individual's contact with the system. These potential consequences include effects on a person's immigration status, housing and employment opportunities, access to public benefits, voting rights, and the custody of children. Students will study the core elements of holistic representation, the interrelation between various legal systems, and the substantive law that can result in such consequences. Students will examine how to work collaboratively with other professionals. Substantial class time will be devoted to professional skills instruction, as well as discussion and analysis of students' fieldwork. Offered Yearly.

**Prerequisite:** LEX 6800 (may be taken concurrently) and LEX 8517 (may be taken concurrently)

**Corequisite:** SW 6991

**Restriction(s):** Enrollment is limited to Law level students.

**LEX 8595 Advanced Externship Cr. 2**

A two-credit, letter-graded course for students who will complete a second externship at a different field placement in the same substantive area or at a different division of the same location of their prior placement. Students will complete 150 hours of work at an approved field placement, submit reflective memoranda as assigned, and meet with the Director of Clinical Education, or other designated Faculty Supervisor, at least three times during the semester. Approval will only be granted in the rare circumstances where a student's learning objectives differ significantly from those for the first externship and these learning objectives cannot be met by existing clinical or experiential learning course opportunities. Application process required. Offered Every Term.

**Prerequisites:** LEX 8506, LEX 8508, LEX 8516, or LEX 8599

**Restriction(s):** Enrollment is limited to Law level students.

**LEX 8598 Public Service Externship: Practicum Cr. 2**

Students perform 150 hours of unpaid work in public service settings. Students are assigned tasks similar to those performed by entry-level public service lawyers. Students develop interviewing and counseling skills, legal drafting skills, oral communication skills, law practice management skills, and the ability to learn from experience. Offered Every Term.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8599 Public Service Externship: Colloquium Cr. 2**

Students learn about the roles and responsibilities of public service lawyers, strategic, practical, and ethical dimensions of public interest practice, and effective advocacy. Offered Every Term.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8601 Appeal and Post-Conviction Advocacy Clinic Cr. 4**

Clinical legal writing experience. Students will work with indigent clients who are challenging their felony convictions or sentences in state or federal court, in cooperation with the Michigan State Appellate Defender Office (SADO). Students will meet with the instructor in individual sessions and class sessions to discuss writing, investigation, client communication, research and the appellate and correctional processes. Students have client contact and may participate in an actual circuit court argument. Regardless of the court filing in each case, every student must prepare an appellate document (motion and brief, application for leave to appeal, or a memorandum of law) on behalf of his or her client. Offered Yearly.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8604 Asylum and Immigration Law Clinic Cr. 6**

Lawyering skills and values needed to effectively represent clients, and the legal skills and knowledge needed to represent clients seeking asylum or other immigration benefits, including an Immigration Court hearing. Asylum case simulation. Professional responsibility issues. In clinical component, students represent clients on a variety of immigration matters. Offered Yearly.

**Prerequisite:** LEX 7371 with a minimum grade of D and LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8606 Asylum and Immigration Law Clinic (Advanced) Cr. 2**

Students continue to gain increased experience in different settings and issues, and may also organize and participate in community outreach projects. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8607 Civil Rights and Civil Liberties Clinic Cr. 4**

Collaborative venture with American Civil Liberties Union (ACLU) of Michigan; opportunity to litigate civil rights and civil liberties impact cases before state and federal courts. Classroom component includes a semester-long simulation of a civil rights case that gives students opportunity to develop professional skills such as interviewing, counseling, drafting pleadings and discovery requests, taking depositions, preparing and arguing motions, and negotiating with opposing counsel. Offered Winter.

**Prerequisites:** LEX 6800 with a minimum grade of C (may be taken concurrently) and LEX 7266 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Repeatable for 8 Credits**

**LEX 8608 Community Advocacy Clinic Cr. 3**

The Community Advocacy Clinic will provide students with the opportunity to collaborate with a community group, coalition or public interest legal organization to prepare and pursue non-litigation strategies to address pressing legal needs in an identified community. Through this clinic, students will develop community advocacy and engagement skills, while exploring the various ways in which law and public policy can be used to address community needs. Offered Yearly.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8610 Transnational Environmental Law Clinic (Advanced) Cr. 2**

Students continue their work with the Environmental Law Clinic, gaining increased experience in different settings and issues; students work with Great Lakes Environmental Law Center and may be involved in formally representing other community organizations and public interest groups. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8611 Transnational Environmental Law Clinic Cr. 6**

Skills and strategies needed to affect environmental policy in the three branches of state and federal government. Classroom sessions include current environmental policy challenges and opportunities; guest speakers. Clinical component includes preparation of policy papers and formal legislative testimony, commenting on rulemaking and permit decisions, and engaging in judicial review and enforcement litigation; students work with Great Lakes Environmental Law Center. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8615 Patent Procurement Clinic Cr. 4**

Students represent clients in patent procurement matters before the U.S. Patent and Trademark Office, Detroit satellite office. Student work includes interviewing and counseling clients, fact investigation, performing legal research, conducting prior art searches, and drafting and prosecuting patent applications. Skills and values necessary to effectively represent clients in patent procurement matters; exploration of substantive areas of patent law that arise in these matters. Professional responsibility issues commonly faced by patent attorneys, such as conflicts, competence, and confidentiality. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8616 Patent Procurement Clinic (Advanced) Cr. 2**

Students in this clinic represent clients in patent procurement matters before the United States Patent and Trademark Office's Detroit, Michigan, Satellite Office. There is no classroom component in the Advanced Patent Procurement Clinic. Students will be expected to spend between five to ten hours per week continuing work on ongoing cases that have significant deadlines during the semester, gaining increased experience in different settings and addressing more complex issues. Advanced Clinic students will also work with PPC faculty to provide direction and guidance to those enrolled in the PPC Clinic for the first time, in areas in which Advanced Clinic students have already acquired some expertise. Time spent in the Advanced Clinic will include a one-hour weekly meeting with the Clinic's faculty to discuss the status of client matters. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8621 Free Legal Aid Cr. 4**

The Free Legal Aid Clinic, Inc. (FLAC) is a student-run, non-profit organization with a board of directors composed entirely of current Wayne Law students. FLAC partners with legal services organizations to provide free legal services to low-income people in Wayne County. FLAC students practice under the supervision of legal aid attorneys and law school faculty pursuant to the Michigan Student Practice Rule. Students, who work an average of 12-14 hours per week, are responsible for all aspects of the cases assigned to them, including interviewing clients, drafting pleadings and other court filings, arguing motions, conducting trials and evidentiary hearings, negotiating with opposing counsel, researching legal issues, and drafting legal documents. Students participate in a twice-weekly seminar class for this letter-graded course. Credits earned meet the experiential learning and clinical education requirements. Offered Every Term.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8625 Govt Agency Internship Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Repeatable for 3 Credits**

**LEX 8631 Business and Community Law Clinic Cr. 6**

Course component: basic provisions of nonprofit corporate law, tax law, and legal ethics that affect community economic development groups. Clinical component: students assist a community group at or near the stage of incorporating itself and/or applying for tax-exempt status, in services such as drafting and filing articles of incorporation, bylaws, and IRS forms. Students complete term paper on topic of interest to community economic development organizations. Offered Yearly.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D and LEX 7156 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8633 Business and Community Law Clinic (Advanced) Cr. 2**

Participation requires demonstrated commitment to business law, community economic development, or nonprofit law. No classroom component; enrollment limited to two students per semester; students spend between five and ten hours a week continuing their work on ongoing cases and meeting significant deadlines during the semester. Advanced Clinic students also work with BCL faculty to provide direction and guidance to those in the BCL Clinic for the first time, in areas in which Advanced Clinic students have already acquired some expertise; as well as coordinate community outreach and informational programs. Includes one hour per week meeting with BCL faculty to discuss the status of client matters. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8641 Disability Law Clinic Cr. 6**

Cooperative venture with Wayne County Legal Services. Hands-on experience while helping individuals with disabilities and their families obtain services and support to avoid out-of-home placement at public expense. Students perform 15-20 hours fieldwork per week. Student responsible for 3 to 5 cases: investigating facts, researching law, counseling client, representing client in administrative or judicial proceedings, drafting and arguing appeals, engaging in settlement negotiations. Intake, case acceptance, individual client representation, community education and law reform efforts. Includes two-hour weekly seminar; graded on honors pass-low pass-no credit basis. Credits count toward 14-credit maximum in applied and skills courses. No credit after LEX 8621. Offered Yearly.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8642 Disability Law Clinic (Advanced) Cr. 2**

Students continue their work on cases or projects begun in the Disability Law Clinic that could not be completed in a single term, work on new cases or projects that involve more complex issues or give students opportunities to develop additional skills, or serve as teaching assistants for the Clinic. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8643 Fundamentals of Business and Community Law Clinic Cr. 4**

The classroom component of this clinic teaches students the skills and values needed to effectively represent entrepreneurs and nonprofit organizations on transactional matters, including client interviewing, counseling and contract drafting and negotiation skills. It will also address areas of law urban entrepreneurs commonly encounter through choice of business entity, commercial real estate leasing, copyright, and trademark, and more. In the clinical component, students represent urban entrepreneurs and nonprofit clients on a variety of transactional matters ranging from entity formation to federal and state tax exemption applications, to counseling on the protection and licensing of intellectual property. Students interview the clients, determine their needs, develop an action plan to address those needs, and provide the appropriate legal services. Offered Intermittently.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D and LEX 7156 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8645 Immigration Appellate Advocacy Clinic Cr. 3**

Students in this clinic will represent indigent or low-income clients before the Board of Immigration Appeals (BIA). Students will develop advanced legal research and writing skills while learning the complexities of immigration and administrative law in the context of practice before the BIA. In addition, students will learn valuable practice skills, including case planning, legal strategy development, and challenges of the client relationship in an appellate context. Students are expected to draft and file an appellate immigration brief with the BIA. Offered Intermittently.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8661 Legal Advocacy for People With Cancer (Clinic) Cr. 4-6**

Students work with healthcare professionals at the Karmanos Cancer Center to identify and resolve legal issues that present barriers to patient care and wellbeing. Students advise and assist people with cancer in matters pertaining to health insurance, housing, employee rights and benefits, estate and healthcare planning, and public benefits. They develop skills used in a broad range of practice settings: interviewing and counseling, case-management, problem-solving, persuasive fact analysis, legal drafting, negotiation, effective oral communication, and interdisciplinary collaboration. Offered for Law School grading: Honors pass, pass, low pass, no credit. Offered Yearly.

**Prerequisite:** LEX 6800 (may be taken concurrently) with a minimum grade of D

**Restriction(s):** Enrollment is limited to Graduate or Law level students.

**LEX 8662 Legal Advocacy for People with Cancer Clinic (Advanced) Cr. 2**

Continuation of work begun in LEX 8661 which could not be completed in a single term; work on new cases or projects that involve more complex issues or give students opportunities to develop additional skills or serve as teaching assistants for the LAPC Clinic. Students are expected to perform at least 100 hours of clinical work, including regular, frequent meetings with the course instructors. Course does not have a classroom component, but students who serve as teaching assistants are expected to participate in some LAPC classes. Students are required to document their clinical work through detailed, contemporaneous time logs. Offered Fall, Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8665 Nonprofit Leadership for Lawyers Cr. 2**

In this legal professional skills course, students will develop skills that lawyers need to advise and lead a non-profit organization. Through simulations students will gain knowledge about legal drafting of foundational internal documents and legal advocacy related to non-profit organizations. Students will learn what is needed to maintain compliance with laws applicable to non-profit entities while supporting robust organizations that identify and meet community needs. Students will attend a two-hour class each week which will focus on the law of non-profits, communication, and day-to-day operations of non-profits. Offered Yearly.

**Restriction(s):** Enrollment is limited to Law level students; enrollment limited to students in the Law School.

**LEX 8701 Law Review Cr. 1-2**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Repeatable for 4 Credits**

**LEX 8711 Moot Court Cr. 1-2**

Members conduct, under general faculty supervision, the program in the preparation of briefs and the hearings on oral arguments. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Repeatable for 4 Credits**

**LEX 8714 International Legal Research Cr. 2**

Fundamentals of research in public international law. In connection with Jessup International Law Moot Court Competition, students review structure of international legal institutions, nature of the materials they produce, and the unique way these materials are indexed and cataloged. Focus on how these materials can best be used in legal advocacy; emphasis on effective writing and oral argument. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Repeatable for 8 Credits**

**LEX 8721 Mock Trial Cr. 1-2**

Members participate in skills training; intraschool, regional, and national trial advocacy competitions. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Repeatable for 4 Credits**

**LEX 8725 Journal of Business Law Cr. 1**

The Wayne State Journal of Business Law provides the opportunity for law students the opportunity to edit legal scholarship, to prepare a student note or commentary on a relevant legal topic under the supervision of a Wayne Law professor. Offered Fall, Winter.

**Repeatable for 4 Credits**

**LEX 8731 The Journal of Law in Society Cr. 1**

Members contribute to publication of this law journal and the annual symposium. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Repeatable for 4 Credits**

**LEX 8741 Transactional Law Competition Cr. 1**

Practical skills course focused on improving transactional lawyering skills, including drafting agreements, revising agreements, advising clients, and negotiating with transactional attorneys, while exploring important legal/business issues relevant to mergers and acquisitions. During the fall semester, students will participate in an in-house transactional law competition, and during the winter semester, students will participate in the National Transactional LawMeet Competition. Offered Yearly.

**Repeatable for 4 Credits**

**LEX 8815 Fundamentals of US Legal Research Cr. 1**

Introduction to U.S. legal research skills for students from foreign jurisdictions, with a focus on the use of electronic resources for legal research. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in United States Law; enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8875 Survey of United States Law Cr. 3,4**

Concise survey of several substantive fields of United States Law (principally in the area of private law) with focus on several core legal topics integral to understanding the U.S. legal system as a whole, and to working with U.S.-trained lawyers. Material drawn from a variety of areas, such as: law of contracts, property, torts, criminal law, and constitutional law. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in United States Law; enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8890 US Legal Skills for Foreign Law Students Cr. 2**

This course will provide foreign-trained lawyers with a working knowledge of the memo-drafting, transactional, and other skills utilized by U.S. Lawyers. Students will draft a legal memorandum, a client letter, and a contract. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in United States Law; enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**LEX 8999 Master's Essay Direction Cr. 1-2**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate or Law level students; enrollment limited to students in the Law School.

**Repeatable for 2 Credits**



# LFA - Life Fitness Activities

## **LFA 1000 Fitness Basics Cr. 1**

Students will learn basic concepts of development and maintenance of physical activity and will be exposed to the different fitness opportunities offered locally while engaging in health-promoting and wellness activities. Fitness Basics is designed to allow students to participate in physical activity of their choice at a time and location that best fits their schedule, and is electronically recorded and synced to your instructor using a fitness tracking device (i.e. FitBit, Apple Watch, Garmen, Polar, Movband, and other approved devices). Offered Every Term.

**Repeatable for 4 Credits**

## **LFA 1020 Individualized Skills Development Laboratory Cr. 1-2**

Open only to varsity athletes; varsity athletes may elect only once per year for one credit per sport during the term of competition. Offered Fall, Winter.

**Repeatable for 4 Credits**

## **LFA 1035 Fitness Trends Cr. 2**

A fitness sampler class offering an introduction to top fitness and physical activity trends. Fitness activities will change annually based on health and fitness trends in the industry. Offered Fall, Winter.

**Repeatable for 4 Credits**

## **LFA 1040 Healthy Lifestyle Basics Cr. 2**

A study of healthy eating, physical activity, and other lifestyle strategies to promote healthy living and weight management. Students will examine individual health and wellness, identify healthy behaviors, and develop skills to support a healthy lifestyle. Offered Every Term.

**Repeatable for 4 Credits**

## **LFA 1100 Swimming: Elementary Cr. 2**

Fundamental skills and knowledge in aquatics for beginners. Offered Spring/Summer.

**Repeatable for 4 Credits**

## **LFA 1210 Pilates Matwork Cr. 2**

Total body exercise program using a series of floor exercises to increase strength, flexibility, stamina and concentration. Exercises are selected based on core strengths and stabilization methods. Offered Winter.

**Repeatable for 4 Credits**

## **LFA 1220 Cardio-Fit Kickboxing Cr. 2**

Time-efficient workout that stimulates the cardiorespiratory and musculoskeletal systems. Structured routines for all fitness levels (basic, intermediate, advanced); utilizes only basic kickboxing techniques. Offered Fall, Winter.

**Repeatable for 4 Credits**

## **LFA 1230 Basic Toning and Cardio Cr. 2**

Total-body resistance exercise program using hand weights, ankle weights, rubber tubing, adjustable step, and other flexible sources of resistance. High-repetition exercises concentrating on proper technique, body alignment, muscular development, sound biomechanical principles. Offered Every Term.

**Repeatable for 6 Credits**

## **LFA 1250 Zumba Cr. 2**

Zumba is a fusion of Latin and International music and dance themes; the routines feature easy-to-follow aerobic/fitness interval training with rhythms that tone and sculpt the body. Offered Intermittently.

**Repeatable for 4 Credits**

## **LFA 1275 Water Aerobics Cr. 2**

Cardiovascular and muscular endurance program using water resistance exercises performed to music designed to improve strength, flexibility and overall cardiovascular fitness. Performed in shallow water, this class offers basic, structured drills and routines, with low-impact, variable workout intensities, and use of additional resistance devices. Swimming skills not necessary. Offered Spring/Summer.

**Repeatable for 4 Credits**

## **LFA 1315 Boxing Conditioning Cr. 2**

A time-efficient workout which stimulates the cardio respiratory and musculoskeletal systems. It offers structured routines for all fitness levels (basic, intermediate, advanced). Utilizes basic boxing techniques. Boxing skills not necessary. Great for improving cardiovascular endurance. Offered Winter.

**Repeatable for 4 Credits**

## **LFA 1320 Total Body Conditioning Cr. 2**

Group physical training class that mixes traditional calisthenics and body weight exercises with cardiovascular interval training and strength conditioning. Designed to promote fat loss, camaraderie and team effort. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

## **LFA 1340 Zero to a 5K Cr. 2**

A personalized walking/jogging/running program designed to improve the level of cardio-respiratory condition of the participant, with the ultimate goal of completing a 5K (3.1 miles). Considerations include: nutrition, endurance, strength, proper form and various injury prevention guidelines. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 4 Credits**

## **LFA 1420 Dance Fitness Cr. 2**

Basic movement techniques to a variety of dance styles for increased cardiovascular fitness. Offered Intermittently.

**Repeatable for 4 Credits**

## **LFA 1460 Yoga Fusion Cr. 2**

Total body exercise program blending yoga, strength, core work, and dance to increase strength, flexibility, stamina and concentration. Offered Intermittently.

**Repeatable for 4 Credits**

## **LFA 1470 Mindfulness, Fitness and Stress Management Cr. 2**

A variety of physical training methods which integrate a mind-body approach to achieve positive changes in physiological measures of physical fitness. Develop healthy coping habits to prevent or reduce stress. Techniques include but are not limited to exercise, yoga, breathing and meditation, and journaling. Offered Every Term.

**Repeatable for 4 Credits**

## **LFA 1480 Yoga Cr. 2**

Yoga physical exercises to shape and strengthen the human body. Psychosomatic influences used to develop resistance against stress and to train the body and mind to relax. Utilization of auto-suggestion to influence lifestyle. Offered Every Term.

**Repeatable for 4 Credits**

## **LFA 1510 Women's Fitness Cr. 2**

Students will be taught a variety of different methods of cardio and strength training in a different setting each week. Principles and benefits of cross training will be addressed through participation in a wide variety of activities in the gym, outside, and in the weight room. Offered Intermittently.

**Repeatable for 4 Credits**

**LFA 1520 Kickball/Dodgeball Cr. 2**

Analysis, development and practice of fundamental skills, team play, strategies and rules of kickball and dodgeball. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 4 Credits**

**LFA 1530 Basketball: Fundamental Skills Cr. 2**

Analysis and practice of fundamental skills, team play, and rules of basketball. Offered Every Term.

**Repeatable for 4 Credits**

**LFA 1560 Team Sports Sampler Cr. 2**

The analysis, development, and practice of fundamental skills, team play and rules of basketball, volleyball, dodgeball, kickball and other team sports. Offered Winter.

**Repeatable for 4 Credits**

**LFA 1640 Strength Training Basics Cr. 2**

Application and practice of the basics of strength training for healthy living. Students will describe the benefits of strength training and its impact on the body related to injury prevention and recovery, and optimal functioning in everyday life. Students will demonstrate correct exercise techniques and perform prescribed strength training plans. Offered Every Term.

**Repeatable for 4 Credits**

**LFA 1642 Advanced Strength Training Cr. 2**

This course is intended to help students develop in-depth knowledge of strength training principles, including specific types of conditioning, diverse training programs, strength training injury prevention and recovery, and functional fitness. The class is intended for students who already have basic knowledge and skill in strength training. Offered Every Term.

**Repeatable for 4 Credits**

**LFA 1660 Healthy at Home Cr. 2**

Students will learn the foundations of healthy eating, enhanced physical, mental and emotional functioning, and the benefits of a healthy weight for disease prevention. Students will also gain competency in various lifetime fitness activities to improve strength, cardiovascular functioning, balance and stability, and flexibility. The course is intended to provide practical education for healthy living at home, requiring minimal equipment or specialized facilities, or advanced knowledge or skill in dietetics, exercise, or fitness. Offered Every Term.

**Repeatable for 4 Credits**

**LFA 1700 Brazilian Jiu Jitsu Cr. 2**

Analysis and practice of fundamental skills, movements, and philosophy of Brazilian Jiu Jitsu as a modern martial art, self-defense, and competitive sport. Offered Every Term.

**Repeatable for 4 Credits**

**LFA 1780 Tai Chi Chuan: Beginning Cr. 2**

An ancient Chinese exercise, Tai Chi is a series of postures and transitional movements, used to improve balance, strength, circulation, and relaxation. Offered Fall, Winter.

**Repeatable for 4 Credits**

**LFA 2330 First Aid and CPR Cr. 3**

Theory and practice of First Aid and CPR. Students can qualify for national certificates in First Aid and CPR. Offered Every Term.

**Fees:** \$30

## LGL - Language Learning

**LGL 5750 Theories of Second Language Acquisition Cr. 3**

The complex processes involved in learning a foreign/second language, including the nature of inter language and the individual and collective factors influencing learner success and the effectiveness of instruction. Offered Yearly.

**Equivalent:** ENG 5750, LIN 5750

**LGL 5850 Foreign Language Instruction Cr. 3**

Theoretical basis of second language teaching models; historical overview of methodologies; current trends in teaching of reading, writing, listening, speaking, and culture. Implications of methodology on materials, classroom techniques, and assessment. Offered Every Other Year.

**LGL 7850 Foreign Language Instruction Cr. 3**

Theoretical basis of second language teaching models; historical overview of methodologies; current trends in teaching of reading, writing, listening, speaking, and culture. Implications of methodology on materials, classroom techniques, and assessment. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LGL 7999 Master's Essay Direction Cr. 1-3**

Essay course required for degree. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the MA in Language Learning program; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

## LIN - Linguistics

**LIN 1850 Introductory Symbolic Logic Cr. 3**

The logic of propositions; the general logic of predicates and relations. Offered Yearly.

**Equivalent:** PHI 2850

**LIN 1860 Honors Introductory Symbolic Logic Cr. 3**

See LIN 1850 / PHI 2850. Offered Yearly.

**Equivalent:** PHI 2860

**LIN 2000 Chinese Phonetics Cr. 1**

Students will have the hands-on experience of learning Chinese sounds and tones with the intensive instruction and correction of the instructor. After studying the articulatory mechanisms for the Chinese phonetic inventory and system in theory, students will practice them in different combinations and contexts with that native accuracy as the target. Offered Winter.

**Equivalent:** CHI 2000

**Repeatable for 2 Credits**

**LIN 2720 Basic Concepts in Linguistics Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Analysis of the structure and use of language, focusing on English, from the standpoint of current linguistic practice. Topics include: phonetics and sound structure, word structure, syntax, semantics, language origin and history, dialects, language learning, animal communication, and language in social interaction. Offered Yearly.

**Equivalent:** ENG 2720

**LIN 2730 Languages of the World Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Survey of structure of major language families of the world, western and non-western; interrelationships of language and culture; universals and variations of universals in language and culture. Offered Yearly.

**Equivalent:** ENG 2730

**LIN 3080 Cognitive Psychology: Fundamental Processes Cr. 3**

Fundamental theories, concepts, and empirical findings in study of human cognition. Topics include: thinking, problem solving, language comprehension and production, memory and attention. Offered Yearly.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**Equivalent:** PSY 3080

**LIN 3310 Language and Culture Cr. 3**

An introduction to linguistic anthropology. Using comparative approaches to language and culture across time and space, explore variation and change, cognitive dimensions of language, language evolution, linguistic myths, and the use of language in social practice. Offered Fall.

**Prerequisites:** ANT 2100 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or ANT 1100 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** ANT 3310

**LIN 5050 Advanced Symbolic Logic Cr. 4**

Formal, extensive treatment of first-order predicate logic with emphasis on the notions of a formal logical language and truth in a model; the logic of identity; definite descriptions; brief introductions to set theory and the metatheory of propositional and first-order logic; some additional advanced topics to be selected by the instructor. Offered Yearly.

**Equivalent:** PHI 5050

**LIN 5080 Phonetics Cr. 3**

Multisensory study of sounds in the English language, emphasizing acoustic, physiologic, kinesiology approaches. Offered Fall, Winter.

**Equivalent:** SLP 5080

**LIN 5100 Languages of Asia Cr. 3**

Introduction to major language families in Asia; grammar, sounds, language contacts. Offered Winter.

**Equivalent:** CHI 5220, JPN 5220

**LIN 5200 Modal Logic Cr. 4**

The logic of necessity, possibility, and other modal notions as they occur in epistemic and deontic contexts. Propositional and quantified modal logic. Offered Every Other Year.

**LIN 5210 Arabic Sociolinguistics Cr. 3**

Arabic dialectology; Arabic as a minority language in contact. Theories and techniques developed outside Arabic, and their applicability to Arabic situations. Offered Fall.

**Equivalent:** ARB 5210, NE 5210

**LIN 5220 Introduction to Chinese Linguistics Cr. 3**

Writing, sound and grammar systems of Chinese; interaction between Chinese language and Chinese society. Offered Fall.

**Equivalent:** CHI 5210

**LIN 5230 Structure of Arabic Cr. 3**

Survey of historical constitution and theoretical structure of Arabic. Offered Yearly.

**Equivalent:** ARB 5230, NE 5230

**LIN 5240 Grammar of Chinese Cr. 3**

Chinese grammar from perspectives of negation, question formation, aspects and different parts of speech, and the like. Offered Fall.

**Equivalent:** CHI 5230

**LIN 5290 Phonology Cr. 3**

The sound systems of a variety of human languages compared and contrasted in an introduction to the diversity and similarities in human sound systems. Theories of the nature of sound systems and methods of analysis in phonology and morphophonology will be presented. Offered Yearly.

**Prerequisites:** LIN 5700 with a minimum grade of D-, ENG 5700 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or ENG 2720 with a minimum grade of D-

**Equivalent:** ENG 5710

**LIN 5300 Syntax Cr. 3**

The theory of grammatical systems examined through analysis of sentence formation in a variety of human languages, diversity and universals in grammar, and theories of syntax. Offered Yearly.

**Prerequisites:** LIN 5700 with a minimum grade of D-, ENG 5700 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or ENG 2720 with a minimum grade of D-

**Equivalent:** ENG 5740

**LIN 5320 Language and Societies Cr. 3**

For graduate students and advanced undergraduates with a background in linguistic anthropology. Students read classic and contemporary works of linguistic anthropology to expand knowledge of human language and sociality; conduct a major original research project. Offered Winter.

**Prerequisites:** ANT 3310 with a minimum grade of D- or LIN 3310 with a minimum grade of D-

**Equivalent:** ANT 5320

**LIN 5360 Child Language Acquisition Cr. 3**

Despite its complexity and abstractness, young children acquire language without conscious effort or explicit instruction in a span of just a few years. This feat is unique to humans and is unmatched by any other species or even the most sophisticated computers. The course will present a comprehensive introduction to the study of child language acquisition. We will use a cross-linguistic approach to discuss some of the most important issues in language acquisition. We will not only talk about what children accomplish linguistically at various ages, but also discuss various theoretical approaches to explaining how children acquire linguistic knowledge in different domains, focusing on acquiring the sound inventory, words and sentence structure. We will look at some of the methods that have been employed to collect and analyze child language data. Offered Fall.

**Fees:** \$10

**Equivalent:** ENG 5360, PSY 5360

**LIN 5570 Philosophy of Language Cr. 4**

Intensive investigation and discussion of philosophical problems concerning meaning, truth, and the nature of language. Offered Every Other Year.

**Prerequisites:** 1 of (PHI 2400, PHI 5570, PHI 5630, PHI 5640, PHI 2550, PHI 3500, PHI 3550, PHI 3600, PHI 5230, PHI 5500, PHI 5530, or PHI 5550), PHI 1850 with a minimum grade of D-, or PHI 1860 with a minimum grade of D-

**Equivalent:** PHI 5570

**LIN 5700 Introduction to Linguistic Theory Cr. 3**

Introduction to the scientific study of language and methodologies of linguistic analysis: phonetics and phonology, morphology, syntax and semantics. Offered Yearly.

**Equivalent:** ENG 5700

**LIN 5715 Morphology Cr. 3**

Morphology is a core area of Linguistics. The course will introduce the basic issues in the study of the internal structure of words, as well as the analytical techniques applied to morphological analysis. Students will learn how to analyze words of various (Indo-European and non-Indo-European) languages into morphemes, as well as to recognize morphological patterns and to utilize theoretical concepts in order to describe and analyze such patterns. In particular, the course will develop a theory of morphology in generative grammar, paying special attention to the question of whether particular morphological phenomena are primarily syntactic or primarily phonological in nature. Offered Fall.

**Prerequisites:** ENG 5700 with a minimum grade of D-, ENG 2720 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or LIN 5700 with a minimum grade of D-

**Equivalent:** ENG 5715

**LIN 5720 Linguistics and Education Cr. 3**

Introduction to linguistics with emphasis on applications to education. Offered Yearly.

**Equivalent:** ENG 5720

**LIN 5730 English Grammar Cr. 3**

Comprehensive analysis of English sentence structure and parts of speech using the terminology and descriptive approach of traditional grammar. Offered Yearly.

**Equivalent:** ENG 5730

**LIN 5745 Semantics Cr. 3**

Semantics is a core area of Linguistics. This course investigates meaning in natural language. It examines two foundational assumptions of natural language semantics: (i) that the meaning of a declarative sentence is its truth conditions and (ii) that the truth conditions of an expression are determined compositionally (that is, they are determined as a function of its parts and how they are put together). Students will then learn to distinguish between the entailments, implicatures, and presuppositions of an expression, where only the first are part of the expression's truth conditions. Offered Winter.

**Prerequisites:** ENG 5700 with a minimum grade of D-, ENG 2720 with a minimum grade of D-, LIN 2720 with a minimum grade of D-, or LIN 5700 with a minimum grade of D-

**Equivalent:** ENG 5745

**LIN 5750 Theories of Second Language Acquisition Cr. 3**

The complex processes involved in learning a foreign/second language, including the nature of inter language and the individual and collective factors influencing learner success and the effectiveness of instruction. Offered Yearly.

**Equivalent:** ENG 5750, LGL 5750

**LIN 5770 Sociolinguistics Cr. 3**

Identification of sociolinguistic principles used by English speakers and writers in choosing among the different English codes, styles, registers and social dialects in American and other communities. Offered Every Other Year.

**Equivalent:** ENG 5770

**LIN 5900 Culture, Language and Cognition Cr. 3**

Systematic investigation of the relationships among, language, cognition and culture, including issues relating to human universals, cross-cultural concept formation, metaphor, classification and the evolution of cognition and language. Offered Every Other Winter.

**Prerequisites:** ANT 3310 with a minimum grade of D-, ANT 5320 with a minimum grade of D-, LIN 3310 with a minimum grade of D-, LIN 5320 with a minimum grade of D-, LIN 3080 with a minimum grade of D-, or PSY 3080 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**Equivalent:** ANT 5900, PSY 5900

**LIN 5993 Writing Intensive Course in Linguistics Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a corequisite course; see section listing in Schedule of Classes for corequisites available each term.

Satisfies the University General Education Writing Intensive Course in the Major requirement. Intensive training in literature search, linguistic analysis, and the preparation of scholarly written work. Required for all majors. Offered Every Term.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and (LIN 5210 (may be taken concurrently), LIN 5320 (may be taken concurrently), LIN 5750 (may be taken concurrently), LIN 5760 (may be taken concurrently), LIN 5770 (may be taken concurrently), or LIN 6720 (may be taken concurrently))

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**LIN 6700 History of Arabic Cr. 3**

History of the evolution of Arabic. Data from phonetics/phonology and morpho-syntax will form the basis of study. Offered Fall.

**Equivalent:** ARB 6700

**LIN 6720 Topics in Language Cr. 3**

Topics such as: pragmatics, historical linguistics, history of English, language and gender, language and variation, language and evolution. Topics to be announced in the Schedule of Classes. Offered Yearly.

**Equivalent:** ENG 6720

**Repeatable for 12 Credits**

**LIN 7300 Comparative Romance Linguistics Cr. 3**

Historical development and earliest texts in the Romance languages: Latin substrata, historical diffusion, Vulgar Latin, linguistic borrowings, classification, and characteristics of the various Romance languages. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**LIN 7320 Seminar in Hispanic Linguistics Cr. 3**

Seminar topics will vary according to the principal divisions of Spanish linguistics: phonology, morphology, lexicography, syntax, and dialectology. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** SPA 8420

**Repeatable for 9 Credits**

**LIN 7710 Advanced Studies in Linguistic Structure Cr. 3**

Current issues in linguistic theory, including but not limited to topics in phonology, morphology, syntax, semantics. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ENG 7710

**Repeatable for 9 Credits**

**LIN 7720 Advanced Studies in Language Use Cr. 3**

Current problems in language use, including issues in language variation, pidgins and creoles, first language acquisition, perception and production, and linguistic stylistics. Topics to be announced in the Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ENG 7720

**Repeatable for 9 Credits**

**LIN 7991 Directed Study in Linguistics Cr. 1-9**

A research problem which requires field work or intensive and systematic reading of original technical literature. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**



### **LIN 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

## **MAE - Mathematics Education**

### **MAE 1000 Detroit by the Numbers Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
Designed for students to experience mathematics as doable, meaningful, and relevant to their lives. Students will study the city of Detroit by analyzing data and reasoning through quantitative tools presented by local agencies, such as health, environment, education, arts, and sports. Offered Every Term.

### **MAE 5100 Geometry for Middle School Teachers Cr. 3**

Development of Euclidean geometry as a mathematical system; related historical topics; introduction to other geometries; selected topics such as transformations and tessellations. No credit toward a major or minor for secondary mathematics teaching. Offered Every Other Year.

**Prerequisites:** MAT 1110 with a minimum grade of C- and MAT 1120 with a minimum grade of C-

**Equivalent:** MAT 5180

### **MAE 5110 Number Theory for Middle School Teachers Cr. 3**

Topics from elementary theory of numbers which underlie middle school mathematics; historical connections; role of abstraction and proof in mathematics. No credit toward a major or minor for secondary mathematics teaching. Offered Every Other Year.

**Prerequisites:** MAT 1800 with a minimum grade of C- or MAT 1120 with a minimum grade of C-

**Equivalent:** MAT 5190

### **MAE 5120 Abstract Algebra for Middle School Teachers Cr. 3**

Topics from elementary abstract algebra underpinning middle school mathematics curriculum; historical connections; role of abstraction and proof in mathematics. No credit towards major in mathematics or secondary mathematics. Offered Every Other Year.

**Prerequisites:** MAT 1120 with a minimum grade of C- and MAT 1800 with a minimum grade of C-

**Equivalent:** MAT 5120

### **MAE 5130 Problem Solving for Middle School Teachers (5-9) Cr. 3**

Development of mathematical problem solving in middle grades mathematics education; study of non-routine problems; problem solving strategies; historical connections; connections to selected mathematics content and to topics in other disciplines. Offered Every Other Year.

### **MAE 5140 Proportional and Algebraic Reasoning for Middle Grades Teachers (5-9) Cr. 3**

Proportional reasoning involves thinking about relationships and making comparisons of quantities or values. This course explores those relationships and the ability to think about and compare multiplicative relationships between quantities through the lens of algebraic and proportional reasoning. Offered Every Other Year.

### **MAE 5150 Methods and Materials of Instruction: Secondary School Mathematics Cr. 3**

Mathematics in secondary school; major concepts of secondary school mathematics; methods and instructional materials; classroom administration; modern trends. Offered Yearly.

**Corequisite:** MAE 5155

**Restriction(s):** Enrollment limited to students in the College of Education.

### **MAE 5155 Secondary Mathematics Clinical (7-12) Cr. 2**

This course offers school-based mathematics clinical experience in the 7-12 grade band for pre-service teachers. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with clinical instructors and mentor educators. Offered Yearly.

**Corequisite:** MAE 5150

### **MAE 6050 Teaching Mathematics Methods in the Middle Grades Cr. 3**

Creative use of resources and materials for improving the mathematics competencies of middle school and junior high school students; organizing the mathematics classroom for effective instruction; promising trends; related research. Offered Yearly.

**Corequisite:** MAE 6055

**Restriction(s):** Enrollment limited to students in the College of Education.

### **MAE 6055 Teaching Mathematics in the Middle Grades Clinical (5-9) Cr. 2**

This course offers school-based mathematics clinical experience in the 5-9 grade band for pre-service teachers. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with clinical instructors and mentor educators. Offered Yearly.

**Corequisite:** MAE 6050

### **MAE 6075 Historical and Social Contexts of Teaching Mathematics (5-12) Cr. 3**

This course examines current and historical mathematical educational practices that contribute inequitable access and opportunity and ethical and equitable practices in the mathematics classrooms. Offered Yearly.

### **MAE 6150 Special Topics Cr. 1-6**

Current issues and trends; areas of neglected content; curriculum proposals; related research. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Repeatable for 12 Credits**

### **MAE 6200 Teaching Arithmetic, Algebra and Functions from an Advanced Perspective Cr. 3**

Students gain profound understanding of K-12 mathematics. Concepts underlying K-12 topics and procedures; connections to higher mathematics. Teaching with Simplicity; applying mathematical understanding to teaching practices. Offered Fall.

**Prerequisites:** MAT 5120, MAT 6170, or MAT 6180

**Equivalent:** MAT 6200

### **MAE 6210 Teaching Geometry, Probability and Statistics, and Discrete Mathematics from an Advanced Perspective Cr. 3**

Historical perspectives, common conceptions and misconceptions, applications, technology, and mathematical connections relative to teaching geometry (including trigonometry), probability and statistics, and discrete mathematics in secondary school. Offered Winter.

**Equivalent:** MAT 6210

### **MAE 6400 Elementary School: Mathematics Curriculum and Assessment Cr. 3**

Developing competence in school mathematics programs: objectives, procedures, materials, organizational patterns, evaluation. Offered Intermittently.

### **MAE 7150 Advanced Studies in Teaching Discrete Mathematics Cr. 3**

Nature of discrete mathematics and its applications, incorporating discrete topics in school mathematics. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **MAE 7200 Advanced Studies in Teaching Statistics and Probability Cr. 3**

Techniques for teaching statistics and probability in grades K-12; promising materials and activities; research on the learning and teaching of statistics and probability; related resources; review of basic concepts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAE 7250 Advanced Studies in Teaching Algebra Cr. 3**

Fundamental concepts of algebra for a modern secondary school mathematics program; current trends and experimental programs; related research; methods and materials of instruction. Offered Every Other Year.  
**Restriction(s):** Enrollment is limited to Graduate level students.

**MAE 7300 Advanced Studies in Teaching Geometry Cr. 3**

Role of geometry and trigonometry in secondary school mathematics; selection of major concepts; development of postulational thinking; teaching procedures emphasizing modes of thinking in mathematics; modern trends. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

## MAT - Mathematics

*For details on Mathematics prerequisite requirements, please see the Mathematics Placement Information (<http://bulletins.wayne.edu/undergraduate/college-liberal-arts-sciences/mathematics/placement/>) section of this bulletin, or the Mathematics Placement Exam (<http://testing.wayne.edu/register/math-placement-exam.php>) information provided by the Office of Testing, Evaluation and Research Services.*

**MAT 0993 Beginning Algebra Cr. 3,5**

Review of arithmetic, integers, fractions, decimals, percents, ratios. Algebra: solving equations and inequalities, algebraic expressions, graphing, problem solving. No credits apply toward degree. Offered Every Term.

**MAT 1000 Mathematics in Today's World Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
 An exploration of current applications of mathematics, such as gerrymandering, consumer mathematics, cryptography, identification numbers, art, music, statistical design, optimal decision making, and risk assessment. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MAT 1070 College Algebra Cr. 5**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
 A college algebra course with emphasis on functions. Topics include: properties of the real number system, equations and inequalities, lines, graphs, algebra of functions, modeling, exponents, logarithms, systems of equations and conic sections, and introduction to trigonometry if time allows. Warning: This course may not be equivalent to college algebra courses at other institutions. Therefore, this course in conjunction with a trigonometry course taken elsewhere is not sufficient preparation for MAT 2010 (Calculus I). Prerequisites are subject to specific conditions. Refer to the Mathematics Placement Information page referenced at the top of the Mathematics course listings in the University Bulletin. Some sections are offered by the Rising Scholars Program (RSP). These sections require departmental approval and must be taken with MAT 1075, a two-hour workshop. Email [emergingscholars@wayne.edu](mailto:emergingscholars@wayne.edu) for more information regarding the RSP sections. Offered Every Term.

**Prerequisites:** MAT 0993 with a minimum grade of CNC (must be taken at WSU), MAT Permit to Reg ACT/SAT with a test score minimum of 2-4, or Math Permit to Reg - (L1-L4) with a test score minimum of 2-4

**MAT 1075 Problem Solving for College Algebra Cr. 2**

Students work collaboratively on challenging problems related to "College Algebra." Communication skills are taught through group discussions and journal writing. Serving students in the Rising Scholars Program, students are immersed in an environment that promotes a sense of community and the habits of success. This course must be taken with a Rising Scholars Program (RSP) MAT 1070 section. Email [emergingscholars@wayne.edu](mailto:emergingscholars@wayne.edu) for more information. Offered Fall, Winter.

**Corequisite:** MAT 1070

**MAT 1110 Mathematics for Elementary School Teachers I Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
 Problem solving, sets, functions, reasoning, number theory, whole numbers, integers, fractions, decimals. Prerequisites are subject to specific conditions. Refer to the Mathematics Placement Information page referenced at the top of the Mathematics course listings in the University Bulletin. Offered Fall, Winter.

**Prerequisites:** MAT 1050-6999 with a minimum grade of C- (must be taken at WSU), MAT 0995 with a minimum grade of CNC (must be taken at WSU), Math Permit to Reg - (L1-L4) with a test score minimum of 3-4, or MAT Permit to Reg ACT/SAT with a test score minimum of 3-4

**MAT 1120 Mathematics for Elementary School Teachers II Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
 Statistics, probability, geometry, and measurement. Prerequisites are subject to specific conditions. Refer to the Mathematics Placement Information page referenced at the top of the Mathematics course listings in the University Bulletin. Offered Fall, Winter.

**Prerequisites:** MAT 1110 with a minimum grade of C- (must be taken at WSU), MAT Permit to Reg ACT/SAT with a test score minimum of 3-4, or Math Permit to Reg - (L1-L4) with a test score minimum of 3-4

**MAT 1800 Elementary Functions Cr. 4**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
 Basic definition and concept of function. Definitions, properties and graphs of polynomial, rational, exponential, logarithmic, trigonometric, and inverse trigonometric functions. Only two degree credits after MAT 1500. Students in the Emerging Scholars Program must also enroll in the accompanying problem-solving workshop: MAT 1990, for a total of six credits. Prerequisites are subject to specific conditions. Refer to the Mathematics Placement Information page referenced at the top of the Mathematics course listings in the University Bulletin. Offered Every Term.

**Prerequisites:** MAT 1070 with a minimum grade of C- (must be taken at WSU), MAT Permit to Reg ACT/SAT with a test score minimum of 3-4, or Math Permit to Reg - (L1-L4) with a test score minimum of 3-4

**MAT 1990 Precalculus Workshop Cr. 2**

Students work cooperatively in groups to solve challenging problems related to precalculus. Learning is through discovery rather than by lecture. Offered Every Term.

**MAT 2010 Calculus I Cr. 4**

**Satisfies General Education Requirement:** Quantitative Experience Comp  
 Calculus as the study of change. Definitions, concepts, and interpretations of the derivative and the definite and indefinite integrals; differentiation, integration, applications. No credit after former MAT 1510. Students in the Emerging Scholars Program must also enroll in the accompanying problem-solving workshop: MAT 2110, for a total of six credits. Prerequisites are subject to specific conditions. Refer to the Mathematics Placement Information page referenced at the top of the Mathematics course listings in the University Bulletin. Offered Every Term.

**Prerequisites:** MAT 1800 with a minimum grade of C-, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4

**MAT 2020 Calculus II Cr. 4**

**Satisfies General Education Requirement:** Quantitative Experience Comp Review definition of definite integral and fundamental theorem of calculus. Techniques of integration; approximate integration; improper integrals; applications of integration. Sequences and series. Approximating functions by polynomials and Taylor series. Students in the Emerging Scholars Program must also enroll in the accompanying problem-solving workshop: MAT 2120, for a total of six credits. Prerequisites are subject to specific conditions. Refer to the Mathematics Placement Information page referenced at the top of the Mathematics course listings in the University Bulletin. Offered Every Term.

**Prerequisites:** MAT 2010 with a minimum grade of C-

**MAT 2030 Calculus III Cr. 4**

Multivariable calculus with applications. Vectors and vector functions in two and three dimensions; functions of several variables; differentiation; integration; vector calculus. Offered Every Term.

**Prerequisites:** MAT 2020 with a minimum grade of C-

**MAT 2110 Calculus Workshop I Cr. 2**

Students work cooperatively in groups to solve challenging problems related to calculus. Learning is through discovery rather than by lecture. Offered Every Term.

**Prerequisites:** MAT 2010 with a minimum grade of C- (may be taken concurrently)

**MAT 2120 Calculus Workshop II Cr. 2**

Students work cooperatively in groups to solve challenging problems related to calculus. Learning is through discovery rather than by lecture. Offered Winter.

**Prerequisites:** MAT 2020 with a minimum grade of C-

**MAT 2150 Differential Equations and Matrix Algebra Cr. 4**

Differential equations and applications; basic operations of matrices from linear algebra. Only one degree credit after MAT 2350. Offered Every Term.

**Prerequisites:** MAT 2030 with a minimum grade of C-

**MAT 2250 Elementary Linear Algebra Cr. 3**

Topics include: systems of linear equations, matrices, vector spaces, basis, dimension, inner products, linear transformations and eigenvalues. Applications presented. Offered Every Term.

**Prerequisites:** MAT 2020 with a minimum grade of C-

**MAT 2300 Mathematical Epidemiology Cr. 3**

This is a first course in the mathematical modeling of infectious diseases. The course starts with historical, biological, and mathematical background. We introduce basic epidemic models (SIR, SIS, SIRS) first without and then with demographics, and study the properties of these models. We will learn about more complex epidemic models (SEIR, etc.) and how to validate models using real-world data. If time permits, other topics may include: vector-borne disease models, global stability, or control strategies. Offered Yearly.

**Prerequisites:** MAT 2020 with a minimum grade of C-

**MAT 2350 Elementary Differential Equations Cr. 3**

Topics include: first order equations, higher order linear equations, Laplace transforms, linear systems. Applications presented throughout the course. No degree credit after MAT 2150. Offered Yearly.

**Prerequisites:** MAT 2030 with a minimum grade of C- and MAT 2250 with a minimum grade of C-

**MAT 2500 Fundamentals of Mathematics and Proof-Writing Cr. 3**

This course is a writing-intensive introduction to mathematical proofs. It is intended for all mathematics majors to take in order to bridge the gap between 2000-level courses, focusing on calculation, and 5000-level courses, in which students often prove theorems more than they carry out explicit calculations. Students will learn to read and write mathematics in definition-theorem-proof format, which in particular means students will get a lot of experience formulating and explaining logically rigorous arguments in full English sentences, and typesetting their writing in the LaTeX typesetting language (which is standard in mathematics). The mathematical content of the course is elementary set theory (finite and infinite sets, cardinality, Zorn's Lemma and the Axiom of Choice, the Continuum Hypothesis) and elementary analysis (metric spaces and the real numbers). Offered Yearly.

**Prerequisites:** MAT 2010 with a minimum grade of C-

**MAT 2860 Discrete Mathematics Cr. 3**

Foundations of mathematics: logic and mathematical reasoning; sets, functions, sequences; the integers and the Euclidean algorithm; induction, recursive definitions and recurrence relations; graphs. Combinatorics. Graph theory. Boolean algebra. No credit after former MAT 1860 or 1870. Offered Yearly.

**Prerequisites:** MAT 2010 with a minimum grade of C-

**MAT 3430 Applied Differential and Integral Calculus Cr. 4**

Limits, derivatives, applications of derivatives, definite integrals and their applications, and trigonometric functions. No degree credit in College of Liberal Arts and Sciences. Offered Every Term.

**Prerequisites:** MAT 1800 with a minimum grade of C-

**Equivalent:** ET 3430

**MAT 3450 Applied Calculus and Differential Equations Cr. 4**

Continuation of MAT/ET 3430, including logarithmic and exponential functions, first and second order ordinary differential equations, vectors, polar coordinates, Laplace transforms, Taylor series, and Fourier series. No degree credit in College of Liberal Arts and Sciences. Offered Every Term.

**Prerequisites:** ET 3430 with a minimum grade of C- or MAT 3430 with a minimum grade of C-

**Equivalent:** ET 3450

**MAT 3800 Contemporary Topics in Mathematics Cr. 3**

The content of this course will vary from semester to semester. It will cover topics of current interest that are not part of other mathematics courses. Offered Intermittently.

**Prerequisites:** MAT 2020 with a minimum grade of C-

**Repeatable for 12 Credits**

**MAT 4990 Directed Study: Honors Program Cr. 1-4**

Offered Intermittently.

**Repeatable for 8 Credits**

**MAT 5000 Fundamental Concepts of Mathematics and Proof Writing Cr. 3**

Fundamental concepts: basic logic, basic set theory, functions, equivalence relations. Proof: methods of proof, structures of proofs, proof-writing in a variety of mathematical subjects. Not considered a 5000+ level course for undergraduate degree requirements in mathematics; no credit towards graduate degree in mathematics. Offered Intermittently.

**Prerequisites:** MAT 2250 with a minimum grade of C- or MAT 2860

**MAT 5040 Elementary Abstract Algebra Cr. 4**

This is an introduction to some of the main ideas of number theory and abstract algebra. The course also serves to introduce students to the uses and benefits of abstraction, and to the construction of airtight logical arguments. We start with a careful investigation of familiar number systems: the natural numbers, the integers, the rationals, the reals and the complex numbers. We then proceed to generalize these ideas to consider polynomial rings and fields. Offered Fall.

**Prerequisites:** MAT 2250 with a minimum grade of C- and 1 of (MAT 2500 with a minimum grade of C- or MAT 2860)

**MAT 5070 Elementary Analysis Cr. 4**

Topics include: the real numbers, cardinality, sequences, limits, continuity, uniform continuity, differentiation, integration. Offered Fall, Winter.

**Prerequisites:** MAT 2030 with a minimum grade of C- and (MAT 2150 with a minimum grade of C-, MAT 2250 with a minimum grade of C-, or MAT 2350 with a minimum grade of C-)

**MAT 5100 Numerical Methods I Cr. 3**

Numerical errors; solutions of nonlinear equations; polynomial interpolation; numerical approximation; numerical integration and differentiation; numerical solutions of systems of linear equations; numerical solutions of ordinary differential equations. Offered Fall.

**Prerequisites:** MAT 2030 with a minimum grade of C-, MAT 2250 with a minimum grade of C-, and (BE 1500 with a minimum grade of C- or (CSC 1100 with a minimum grade of C- and CSC 1101 with a minimum grade of C-))

**MAT 5110 Numerical Methods II Cr. 3**

Numerical linear algebra topics, including eigenvalue problems, conjugate-gradient method, GMRES method; numerical solution of ordinary differential equations, Runge-Kutta methods; numerical solutions of partial differential equations, finite difference methods. Offered Winter.

**Prerequisites:** MAT 5100 with a minimum grade of C- and (MAT 2150 with a minimum grade of C- or MAT 2350 with a minimum grade of C-)

**MAT 5120 Abstract Algebra for Middle School Teachers Cr. 3**

Topics from elementary abstract algebra underpinning middle school mathematics curriculum; historical connections; role of abstraction and proof in mathematics. No credit towards major in mathematics or secondary mathematics. Offered Every Other Year.

**Prerequisites:** MAT 1120 with a minimum grade of C- and MAT 1800 with a minimum grade of C-

**Equivalent:** MAE 5120

**MAT 5180 Geometry for Middle School Teachers Cr. 3**

Development of Euclidean geometry as a mathematical system; related historical topics; introduction to other geometries; selected topics such as transformations and tessellations. No credit toward a major or minor for secondary mathematics teaching. Offered Every Other Year.

**Prerequisites:** MAT 1110 with a minimum grade of C- and MAT 1120 with a minimum grade of C-

**Equivalent:** MAE 5100

**MAT 5190 Number Theory for Middle School Teachers Cr. 3**

Topics from elementary theory of numbers which underlie middle school mathematics; historical connections; role of abstraction and proof in mathematics. No credit toward a major or minor for secondary mathematics teaching. Offered Every Other Year.

**Prerequisites:** MAT 1800 with a minimum grade of C- or MAT 1120 with a minimum grade of C-

**Equivalent:** MAE 5110

**MAT 5210 Advanced Calculus Cr. 4**

Functions of many variables; limits, continuity; differentiation, mean value theorems; implicit and inverse function theorems; extremal problems, Lagrange multipliers; fixed-point methods; Taylor series; Fourier series, uniform convergence; improper integrals. Offered Intermittently.

**Prerequisites:** MAT 2250 with a minimum grade of C-

**MAT 5220 Partial Differential Equations Cr. 4**

Partial differential equations of mathematical physics; method of separation of variables; Fourier series; Sturm-Liouville eigenvalue problems; boundary-value problems; method of eigenfunction expansion. Optional topics include: Green's functions; solutions by Fourier transform; method of characteristics. Offered Winter.

**Prerequisites:** MAT 5070 with a minimum grade of C-

**MAT 5230 Complex Variables and Applications Cr. 4**

Cauchy-Riemann equations; elementary functions; mappings by elementary functions; the Cauchy integral formula; Morera's theorem; Taylor series; Laurent series; residues and poles; conformal mappings. Optional topics: improper integrals, the Schwarz-Christoffel transformations; potential theory; applications to differential and integral equations. No credit after MAT 6600. Offered Fall, Winter.

**Prerequisites:** MAT 5070 with a minimum grade of C-

**MAT 5280 Methods of Differential Equations Cr. 3**

Linear nth order differential equations; linear systems of differential equations (constant and periodic coefficients); oscillation and comparison theorems for second order differential equations; boundary value problems; stability theory (Liapunov's direct method and frequency domain stability criteria); asymptotic solutions; autonomous non-linear systems; classification of singularities. Offered Fall.

**Prerequisites:** MAT 2150 with a minimum grade of C- or MAT 2350 with a minimum grade of C-

**MAT 5350 Logical Systems I Cr. 4**

Metaresults concerning formal systems of sentential and first-order logics; soundness, completeness; independence of axioms; introduction to recursive functions; formalization of elementary arithmetic; discussion of Godel's incompleteness theorem and Church's Theorem. Offered Every Other Year.

**Prerequisites:** MAT 5600 with a minimum grade of C-, PHI 2850 with a minimum grade of C-, PHI 2860 with a minimum grade of C-, PHI 5050 with a minimum grade of C-, or MAT 5420 with a minimum grade of C-

**Equivalent:** PHI 5350

**MAT 5400 Elementary Theory of Numbers Cr. 3**

Primes and the Fundamental Theorem of Arithmetic; greatest common divisor, least common multiple, Euclidean Algorithm; congruences, theorems of Fermat, Wilson and Euler; arithmetic functions; linear Diophantine equations; quadratic congruences and the Law of Quadratic Reciprocity. Optional topics include: applications to cryptography, perfect numbers, primitive roots and indices, Fibonacci numbers, Pythagorean triples, sums of squares, continued fractions. Offered Yearly.

**Prerequisites:** MAT 2030 with a minimum grade of C- and MAT 2250 with a minimum grade of C-

**MAT 5410 Applied Linear Algebra Cr. 4**

Gaussian elimination, vector spaces, the four fundamental subspaces, orthogonality, least squares approximation, determinants, eigenvalues and eigenvectors, positive definite matrices, singular value decomposition, linear transformations, complex matrices. Applications such as differential and difference equations, Markov processes, graphs and networks, Fourier series, computer graphics, numerical linear algebra. Offered Winter.

**Prerequisites:** MAT 2030 with a minimum grade of C- and MAT 2250 with a minimum grade of C-



**MAT 5420 Algebra I Cr. 4**

Abstract concepts: sets, mappings, equivalence relations, induction, general methods of proof. Group theory: groups, subgroups, cyclic groups, direct products, cosets, Lagrange's Theorem, quotient groups, homomorphisms, permutation groups. Rings and fields (basic definitions). Only two credits apply after either MAT 6170 or 6180; no credit after both MAT 6170 and 6180. Offered Fall, Winter.

**Prerequisites:** MAT 2030 with a minimum grade of C- and MAT 2250 with a minimum grade of C-

**MAT 5430 Algebra II Cr. 4**

Group theory continued: Sylow Theorems, finite abelian groups. Ring theory: rings, integral domains, fields of quotients, homomorphisms, ideals, quotient rings, P.I.D.s, U.F.D.s, polynomial rings. Advanced topics in linear algebra: canonical forms. Field theory: extensions, splitting fields, finite fields, geometric constructions. Offered Fall, Winter.

**Prerequisites:** MAT 5420 with a minimum grade of C-

**MAT 5520 Introduction to Topology Cr. 3**

An introduction to topology, mostly through an intuitive approach. Topics chosen from among: topological equivalence and topological properties, complexes, Euler characteristic, connectedness, compactness, continuity, Brouwer's Fixed Point Theorem, vector fields, Hairy Ball Theorem,  $n$ -dimensional spaces, classification of surfaces, cut and paste techniques, the Moebius band, orientability, the fundamental group. No credit toward graduate degree in mathematics or statistics. Offered Intermittently.

**Prerequisites:** MAT 2030 with a minimum grade of C- and MAT 5000 with a minimum grade of C-

**MAT 5530 Elementary Differential Geometry and its Applications Cr. 3**

Introduction to the differential geometry of curves and surfaces in three-dimensional space. Curvature, torsion, Frenet formulas, fundamental theorem of space curves. Gauss and mean curvature, asymptotic and principal curves, geodesics, Gauss-Bonnet theorem. Applications such as pursuit curves, roulettes, brachistochrones, precession of Foucault's pendulum, design of packaging machines, shapes and soap films. Offered Intermittently.

**Prerequisites:** MAT 2030 with a minimum grade of C- and MAT 2250 with a minimum grade of C-

**MAT 5540 Topological Data Analysis Cr. 3**

Application of topological methods to reveal structure in data that are not visible by classical statistical methods. Basic ideas in topology, including topological spaces, continuous functions, homeomorphisms, simplicial complexes, simplicial homology, and the Vietoris-Rips complex. Use of computer software to calculate persistent homology of data sets from the applied sciences and elsewhere. Practical data analysis tools for mathematical sciences, as well as for engineering, physics, biology, medicine, economics, sociology, and any other subject in which experimental data is produced and analyzed. Offered Winter.

**Prerequisites:** MAT 2250 with a minimum grade of C-

**MAT 5600 Introduction to Analysis I Cr. 4**

Completeness, convergence, compactness, connectedness and continuity in the context of metric spaces; applications to differential calculus. Offered Fall, Winter.

**Prerequisites:** MAT 5070 with a minimum grade of C-

**MAT 5610 Introduction to Analysis II Cr. 3**

Integration, point-wise and uniform convergence of sequences and series of functions; power series; introduction to analytic functions; Fourier series; possible additional topics. Offered Fall, Winter.

**Prerequisites:** MAT 5600 with a minimum grade of C-

**MAT 5700 Introduction to Probability Theory Cr. 4**

Probability spaces; combinatorial analysis; independence and conditional probability; discrete and continuous random variables including binomial, Poisson, exponential and normal distributions; expectations; joint, marginal and conditional distribution functions; law of large numbers; central limit theorems. Offered Fall, Winter.

**Prerequisites:** MAT 2030 with a minimum grade of C-

**MAT 5710 Introduction to Stochastic Processes Cr. 3**

Non-measure-theoretic introduction to the theory of stochastic processes and its applications, with emphasis on Markov processes in both discrete and continuous time, the Poisson process, and Brownian motion. Offered Yearly.

**Prerequisites:** 2 of MAT 5700 with a minimum grade of C- and (MAT 2150 with a minimum grade of C-, MAT 2250 with a minimum grade of C-, or MAT 2350 with a minimum grade of C-)

**MAT 5740 The Theory of Interest Cr. 3**

Concrete problems used to explore concepts in the theory of interest, including measurement of interest, annuities, yield rates, amortization, bonds, and stochastic approaches. Students prepare for the actuarial examination FM/2. Offered Yearly.

**Prerequisites:** MAT 2020 with a minimum grade of C-

**MAT 5750 Mathematics of Finance Cr. 3**

Topics to be covered include: financial markets, binomial models, stocks and options, Black-Scholes formula, hedging, bond models and interest rate options, and computational methods for bonds. Offered Winter.

**Prerequisites:** (1 of (MAT 2150 or MAT 2350) and MAT 5700 with a minimum grade of C-)

**MAT 5770 Mathematical Models in Operations Research Cr. 3**

Deterministic and probabilistic mathematical modeling of real-world problems. Linear and nonlinear programming; Markov chains; queuing theory; inventory models; Markov decision processes. Offered Yearly.

**Prerequisites:** MAT 2030 with a minimum grade of C-, MAT 2250 with a minimum grade of C-, and MAT 5700 with a minimum grade of C-

**MAT 5870 Methods of Optimization Cr. 3**

Introduction to basic mathematical theory and computational methods of optimization; unconstrained and constrained optimization problems; optimality conditions in various optimization problems; numerical methods of optimization. Offered Winter.

**Prerequisites:** MAT 2150 with a minimum grade of C- or MAT 2350 with a minimum grade of C-

**MAT 5890 Special Topics in Mathematics Cr. 3-4**

Material currently of interest to students and faculty. Topics to be announced in Schedule of Classes. Offered Fall, Winter.

**Prerequisites:** MAT 2030 with a minimum grade of C- and (MAT 2150 with a minimum grade of C-, MAT 2250 with a minimum grade of C-, or MAT 2350 with a minimum grade of C-)

**Repeatable for 12 Credits****MAT 5990 Directed Study Cr. 1-4**

Undergraduates who elect this course must be mathematics majors of honors caliber. Content will vary to satisfy needs of individual student. Offered Every Term.

**Repeatable for 8 Credits****MAT 5992 Teaching Mathematics in College Cr. 1**

Preparation for first semester of teaching in developmental-level mathematics course. Content presentation, test-writing, grading, classroom management, use of technology. Students are videotaped and critiqued. Required of all graduate teaching assistants in Mathematics Department. Offered for S and U grades only. Offered Fall.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Mathematics or Mathematics Honors; enrollment is limited to Graduate or Undergraduate level students.

**MAT 5993 Writing Intensive Course in Mathematics Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a course designated as a corequisite. See section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing-Intensive Course in the Major requirement. Required for all majors. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MAT 6130 Discrete Mathematics Cr. 3**

Foundations of mathematics: logic, sets, functions, sequences. The integers. Matrices. Mathematical reasoning: induction, recursive definitions and recurrence relations. Combinatorics. Graph theory. Boolean algebra. No credit after former MAT 1860 or 1870. Not available to Math majors for degree credit. Offered Yearly.

**Prerequisites:** MAT 2010 with a minimum grade of C-  
**Restriction(s):** Enrollment limited to students in the College of Education.

**MAT 6140 Geometry: An Axiomatic Approach Cr. 3**

Foundations: logic, axiom systems, models; Hilbert's axioms; the parallel postulate; Euclidean geometry; non-Euclidean geometries; hyperbolic geometry; philosophical questions. Offered Yearly.

**Prerequisites:** MAT 5000 with a minimum grade of C-

**MAT 6150 Probability and Statistics for Teachers Cr. 4**

Counting techniques, discrete sample spaces and probability, random variables, mean and variance, joint distributions, the binomial and normal distributions, central limit theorem, estimation and hypothesis testing. Not available to Math majors for degree credit. Offered Fall, Winter.

**Prerequisites:** MAT 1800 with a minimum grade of C  
**Restriction(s):** Enrollment limited to students in the College of Education.

**MAT 6170 Algebra: Ring Theory Through Exploration, Conjecture, and Proof Cr. 4**

Rings: basic definitions; properties; examples including the integers, rationals, reals, and complex numbers; ideals; homomorphisms; and divisibility. Connections to high school algebra. Students will be involved in the mathematical processes of exploration, conjecture, and proof. Only two credits after MAT 5420; no credit after MAT 5430. Offered Yearly.

**Prerequisites:** MAT 5000 with a minimum grade of C-

**MAT 6180 Algebra: Group Theory Through Exploration, Conjecture, and Proof Cr. 3**

Groups: basic definitions, properties, examples, subgroups, cyclic groups, permutation groups, homomorphisms, quotient groups. Connections to high school algebra. Students will be involved in the mathematical processes of exploration, conjecture, and proof. Offered Every Other Winter.

**Prerequisites:** MAT 5000 with a minimum grade of C-

**MAT 6200 Teaching Arithmetic, Algebra and Functions from an Advanced Perspective Cr. 3**

Students gain profound understanding of K-12 mathematics. Concepts underlying K-12 topics and procedures; connections to higher mathematics. Teaching with Simplicity; applying mathematical understanding to teaching practices. Offered Fall.

**Prerequisites:** MAT 5120 with a minimum grade of C-, MAT 6170 with a minimum grade of C-, or MAT 6180 with a minimum grade of C-  
**Equivalent:** MAE 6200

**MAT 6210 Teaching Geometry, Probability and Statistics, and Discrete Mathematics from an Advanced Perspective Cr. 3**

Historical perspectives, common conceptions and misconceptions, applications, technology, and mathematical connections relative to teaching geometry (including trigonometry), probability and statistics, and discrete mathematics in secondary school. Offered Winter.

**Equivalent:** MAE 6210

**MAT 6300 Mathematical Epidemiology Cr. 3**

This is a first course in the mathematical modeling of infectious diseases. The course starts with historical, biological, and mathematical background. We introduce basic epidemic models (SIR, SIS, SIRS) first without and then with demographics, and study the properties of these models. We will learn about more complex epidemic models (SEIR etc.), and how to validate models using real-world data. If time permits, other topics may include: vector-borne disease models, global stability, or control strategies. No credit will be awarded to students who have previously taken MAT 2300. Graduate students in mathematics should take advanced courses in differential equations instead. Offered Yearly.

**Prerequisites:** MAT 2020 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Mathematics.

**MAT 6420 Advanced Linear Algebra Cr. 3**

Vector spaces and linear maps from a basis free perspective. Vector spaces, linear transformations, dual spaces, quotient spaces, inner product spaces, quadratic forms, adjoint operators, normal operators, spectral theorem, Jordan canonical form, trace and determinant. Offered Winter.

**Prerequisites:** MAT 5430 with a minimum grade of C-

**MAT 6480 Introduction to Quantum Computing Cr. 3**

Serves as an introduction to quantum computing and brings together students with different backgrounds in mathematics, physics, chemistry, and computer science to foster interdisciplinary connections in the areas of quantum computing and quantum information. A strong background in linear algebra over the complex numbers as well as differential and integral calculus is required. Familiarity with quantum physics and complexity theory will be helpful, but it is not required. Offered Fall.

**Equivalent:** PHY 6480

**MAT 6500 Topology I Cr. 3**

Topological spaces and continuous functions; connectedness; compactness; product and quotient spaces; metric spaces; Urysohn's lemma; Tietze extension theorem; homotopy; covering spaces and path lifting; the fundamental group and examples; Brouwer fixed point theorem and applications. Offered Fall.

**Prerequisites:** MAT 5430 with a minimum grade of C- or MAT 5610 with a minimum grade of C-

**MAT 6600 Complex Analysis Cr. 2-4**

Complex differentiation; elementary functions; Cauchy's integral theorem; power series; Laurent expansions; singularities; residue theorem; entire and meromorphic functions; Riemann mapping theorem. Offered for three credits only, if student has taken MAT 5230. Offered Winter.

**Prerequisites:** MAT 5430 with a minimum grade of C- or MAT 5610 with a minimum grade of C-

**MAT 6990 Internship in Mathematical Sciences Cr. 1-3**

Experience in industry, or in a research laboratory, or in an institution, using tools from the mathematics curriculum. Students provide a written report based on the internship experience. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Mathematics.  
**Repeatable for 3 Credits**

**MAT 7200 Ordinary Differential Equations Cr. 3**

Existence and uniqueness of solutions; linear solutions and linearization; linear differential equations in the complex domain; solutions near regular and irregular singular points; autonomous systems; stability theory; limit cycles; perturbation theory; boundary value problems; Green's function; spectral theory. Offered Winter.

**Prerequisites:** MAT 5610 with a minimum grade of C or MAT 7600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7210 Partial Differential Equations Cr. 3**

Linear partial differential equations; fundamental solutions; distributions and their Fourier transforms; hyperbolic equations; Cauchy-Kovalevsky theorem; energy inequalities; weak solutions; propagation of singularities; elliptic equations; maximum principles; Sobolev spaces and inequalities; Garding's inequality; existence and regularity of solutions of Dirichlet problems; fundamental solutions of parabolic equations; strongly continuous semigroups. Offered Fall.

**Prerequisites:** MAT 5610 with a minimum grade of C or MAT 7600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7230 Finite Element Methods Cr. 3**

Topics chosen at discretion of instructor from topics similar to: regularity theory for second order elliptic partial differential equations; Hamilton-Jacobi equations; conservation laws; evolution equations; semigroup theory; calculation of variations; nonvariational methods. Offered Winter.

**Prerequisite:** MAT 5100 with a minimum grade of C- and MAT 5070 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7240 Advanced Partial Differential Equations Cr. 3**

Continuation of MAT 7210. Variety of topics chosen by the instructor. Offered Winter.

**Prerequisite:** MAT 7210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7270 Topics in Applied Mathematics Cr. 3-4**

Topics of special interest such as differential equations; calculus of variations; elliptic functions; orthogonal functions; numerical methods; systems and control theory. Topics to be announced in Schedule of Classes. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MAT 7400 Advanced Algebra I Cr. 3**

Groups; group actions; group automorphisms; Sylow theorems; direct and semi-direct products; abelian groups; nilpotent and solvable groups; free groups; vector spaces and canonical forms; field extensions; Galois theory; finite fields; cyclotomic extensions; abelian extensions; Galois groups of polynomials. Offered Every Other Fall.

**Prerequisite:** MAT 5430 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7410 Advanced Algebra II Cr. 3**

Rings; ideals; maximal and prime ideals; modules; submodules and quotient modules; tensor products; flatness; exactness of Hom and tensor; localization; rings of fractions; integrality; Noetherian and Artinian rings; completions; representation theory; group rings; injective and projective modules; Wedderburn theorem; character theory. Offered Every Other Fall.

**Prerequisite:** MAT 5430 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7470 Topics in Algebra Cr. 3-4**

Selected topics from algebra. Offered Yearly.

**Prerequisite:** MAT 7400 with a minimum grade of C or MAT 7410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MAT 7500 Topology II Cr. 3**

Smooth manifolds and maps; examples from projective spaces, from Lie groups, and from low dimensions; local coordinates; partitions of unity; tangent vectors and tangent bundles; differentials of smooth maps; vector fields; local one-parameter groups of diffeomorphisms; differential forms; integration and Stokes theorem; definition of deRham cohomology. Offered Winter.

**Prerequisite:** MAT 6500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7510 Algebraic Topology I Cr. 3**

CW complexes; simplicial, singular, and cellular homology; Mayer-Vietoris sequences; categories and functors; derived functors of Ext and tensor; universal coefficients theorem; Künneth theorem; cohomology; cup product; orientations; Poincaré duality. Offered Every Other Winter.

**Prerequisite:** MAT 5430 with a minimum grade of C and MAT 6500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7520 Algebraic Topology II Cr. 3**

Fundamental group; Van Kampen's theorem; covering spaces; homotopy groups; Whitehead's theorem; cellular and CW approximation; excision; Hurewicz theorem; cofibrations and fibrations; cofiber and fiber sequences; Postnikov towers; obstruction theory. Offered Every Other Winter.

**Prerequisite:** MAT 5430 with a minimum grade of C and MAT 6500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7570 Topics in Geometry and Topology Cr. 3-4**

Selected topics from geometry and topology. Offered Yearly.

**Prerequisite:** MAT 7500 with a minimum grade of B or MAT 7510 with a minimum grade of B or MAT 7520 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MAT 7600 Real Analysis I Cr. 3**

Lebesgue measure; general measures; measurable functions; integration (monotone and dominated convergence theorems); function spaces; Lebesgue spaces; modes of convergence; product measures; Fubini theorem. Offered Fall.

**Prerequisite:** MAT 5610 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7610 Real Analysis II Cr. 3**

Differentiation; relationship between differentiation and integration; Radon-Nikodym theorem; Fourier transforms; Hilbert and Banach spaces; selected topics. Offered Winter.

**Prerequisite:** MAT 7600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7700 Advanced Probability Theory I Cr. 3**

Probability spaces; random variables; expectations and moments; convergence concepts; product spaces and Kolmogorov extension theorem; separability of random processes; continuity of random processes; conditional expectation; independence. Offered Every Other Fall.

**Prerequisite:** MAT 5700 with a minimum grade of C and MAT 7600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 7770 Special Topics in Probability Cr. 3-4**

Topics of special interest such as Markov processes; time series; ergodic theory; random equations; probability measures on algebraic structures; probability measures in Banach spaces; martingales; Brownian motion; stochastic integrals. Topics to be announced in Schedule of Classes .  
Offered Intermittently.

**Prerequisite:** MAT 7710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MAT 7990 Directed Study Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MAT 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**MAT 8000 Advanced Topics in Mathematics Cr. 2-4**

Topics to be announced in Schedule of Classes. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 24 Credits**

**MAT 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**MAT 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MAT 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MAT 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MAT 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MAT 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MAT 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Prerequisite:** MAT 9994 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

# MCT - Mechanical Engineering Technology

**MCT 3010 Instrumentation Cr. 3**

Theory and use of measurement instruments and techniques; standards and dimensional units; experimental procedures and data analysis; sensors and transducers for parameters such as displacement, stress, strain, force, torque, temperature, motion, sound. Offered Fall, Winter.

**Prerequisites:** EET 2000 with a minimum grade of C- and PHY 2140 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**MCT 3100 Mechanics of Materials Cr. 3**

The elastic behavior of load bearing materials. Tension, compression, shear, combined stress, bending, torsion and columns. Failure analysis. Offered Fall, Winter.

**Prerequisites:** ET 3030 with a minimum grade of C- and ET 3430 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$10

**MCT 3410 Kinematics and Dynamics of Machines Cr. 3**

Velocity and acceleration of moving parts in machine elements and mechanisms; cam, gear, and gear train design; static and inertial forces, balancing, gyroscopic effects, and critical speeds. Offered Fall, Winter.

**Prerequisite:** ET 3050 with a minimum grade of C-

**MCT 4150 Applied Thermodynamics Cr. 3**

Introduction to the concept of energy and the laws governing the transfers and transformations of energy. Emphasis on thermodynamic properties and the first and second law analysis of systems and control volumes. Integration of these concepts into the analysis of different power and refrigeration cycles. Offered Yearly.

**Prerequisites:** ET 3430 with a minimum grade of C-, CHM 1020 with a minimum grade of C-, and (PHY 2130 with a minimum grade of C- and PHY 2131 with a minimum grade of C-)

**Fees:** \$10

**MCT 4180 Fluid Mechanics Cr. 3**

Properties of fluids, fundamentals of fluid flow, dimensional analysis and similitude, and flow measurement techniques. Introduction to internal and external flows and how to analyze them. Analysis of hydrostatic equipment, hydrokinetic equipment and systems. Introduction to network analysis and calculation. Offered Yearly.

**Prerequisites:** ET 3030 with a minimum grade of C- and ET 3450 with a minimum grade of C- (may be taken concurrently)

**MCT 4210 Heat Transfer Cr. 3**

Basic modes of heat transfer and their applications. Steady state conduction in one and two dimensions and transient conduction. Numerical and graphical methods. Heat exchanges. Condensation and boiling heat transfer. Introduction to mass transfer. Offered Yearly.

**Prerequisites:** MAT 3450 with a minimum grade of C- (may be taken concurrently) and PHY 2140 with a minimum grade of C-

**MCT 4400 Design of Machine Elements Cr. 3**

Fundamental concepts in the design of the separate elements which compose the machine; application of properties and mechanics of materials modified by practical considerations. Offered Yearly.

**Prerequisites:** MCT 3100 with a minimum grade of C- and MCT 3410 with a minimum grade of C- (may be taken concurrently)

**MCT 4990 Guided Study Cr. 1-6**

Supervised study and instruction in the field selected by the student. Offered Intermittently.

**Repeatable for 6 Credits**



### **MCT 5150 Hybrid Vehicle Technology Cr. 3**

Technical concepts and design, energy analysis, unified modeling approach, optimization, control; power generation, engine overview, concepts of hybridization, on-board energy storage; overview of motors, transmissions, fuel cells, future applications. Offered Fall.

**Prerequisites:** ET 3450 with a minimum grade of B+ and PHY 2140 with a minimum grade of B+

### **MCT 5210 Energy Sources and Conversion Cr. 3**

Various energy sources and how they are utilized. Wind, solar, geothermal, fuel cells, storage devices, energy economics and transportation techniques, related to harnessing energy to a usable form such as electricity and heat. Offered Fall.

**Prerequisites:** ET 3430 with a minimum grade of C- and PHY 2140 with a minimum grade of C-

## **MD1 - Medical School: Year 1**

### **MD1 5001 Human Body Foundations I Cr. 10**

Human Body Foundations I is the first of a 3-part course series in the basic sciences that engages medical students with knowledge of the normal structure and function of the human body, prepares them for the study of human disease, sets the stage for success on the USMLE Step I exam, and provides the scaffolding on which the clerkship curriculum is built. Part I emphasizes fundamental principles in biochemistry, cell biology, embryology, histology, genetics, physiology, and pharmacology, and introduces students to the anatomical investigation of tissues and organs through full-body cadaver dissection beginning with the Musculoskeletal System. Offered Yearly.

### **MD1 5002 Human Body Foundations II Cr. 10**

Human Body Foundations II is the second of a 3-part course series in the basic sciences that engages medical students with knowledge of the normal structure and function of the human body, prepares them for the study of human disease, sets the stage for success on the USMLE Step I exam, and provides the scaffolding on which the clerkship curriculum is built. Part II focuses on three organ systems of the body: Cardiovascular/Respiratory, Renal/Urinary, and Gastrointestinal, emphasizing fundamental principles of physiology, histology, biochemistry, pharmacology, genetics, and embryology, as well as anatomical study through full-body cadaver dissection of the visceral systems. Offered Yearly.

### **MD1 5003 Human Body Foundations III Cr. 10**

Human Body Foundations III is the last of a 3-part course series in the basic sciences that engages medical students with knowledge of the normal structure and function of the human body, prepares them for the study of human disease, sets the stage for success on the USMLE Step I exam, and provides the scaffolding on which the clerkship curriculum is built. Part III focuses on the Reproductive & Endocrine Systems and the Central Nervous System and emphasizes fundamental principles of neuroscience, physiology, histology, embryology, genetics, biochemistry, and pharmacology. The sequence of full-body cadaver dissection is brought to a close with the anatomical investigation of pelvic and head & neck regions. Offered Yearly.

### **MD1 5101 Clinical Skills 1A Cr. 1**

This course is designed to allow students to develop and demonstrate foundational knowledge and basic clinical skills in history-taking, patient examination, oral case presentation, clinical reasoning and performance of procedures required to participate in clinical service-learning activities. Students will be introduced to advanced skills in patient interviewing and physical examination emphasizing a patient-centered, empathic and compassionate approach, incorporating the patient's perspective, socioeconomic background and cultural intelligence, and protection of patient privacy required to participate in early clinical experiences. Students will be introduced to basic clinical reasoning concepts. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

### **MD1 5102 Clinical Skills 1B Cr. 1**

In this course, learners will continue to develop and demonstrate foundational knowledge and basic clinical skills in history-taking, patient examination, oral case presentation, clinical reasoning and performance of procedures required to participate in clinical service-learning activities. Students will practice advanced skills in patient interviewing and physical examination emphasizing a patient-centered, empathic and compassionate approach, incorporating the patient's perspective, socioeconomic background and cultural intelligence, and protection of patient privacy required to participate in early clinical experiences. Students will practice basic clinical reasoning skills. Offered Yearly.

**Prerequisite:** MD1 5101

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

### **MD1 5103 Clinical Skills 1C Cr. 1**

In this course, learners will demonstrate mastery of foundational knowledge and basic clinical skills in history-taking, patient examination, oral case presentation, clinical reasoning and performance of procedures required to participate in clinical service-learning activities. Students will continue to develop advanced skills in patient interviewing and physical examination emphasizing a patient-centered, empathic and compassionate approach, incorporating the patient's perspective, socioeconomic background and cultural intelligence, and protection of patient privacy required to participate in early clinical experiences. Students will refine basic clinical reasoning skills. Offered Yearly.

**Prerequisite:** MD1 5102

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

### **MD1 5201 Population, Patient, Physician and Professionalism (P4) 1A Cr. 1**

Provides the opportunity to learn, practice, and apply knowledge and skills as a physician-in-training in diverse urban clinical and community outreach settings. Using a variety of methods, including clinical/community engagement, students engage in activities demonstrating the interconnectedness of the population, patient, and physician. P4 also emphasizes the need for students to develop their professional identity by behaving professionally and demonstrating respect to their colleagues, faculty, and patients and their families. By exploring sensitive topics and communicating with a diverse population, students' attitudes, as well as knowledge and skills, will be developed with a concentrated focus on understanding the patient's perspective, leading to true patient-centered care. Students will become effective team members, learn evidence-based theories to reduce healthcare disparities, recognize their own professional identity formation, and develop self-directed learning habits. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5202 Population, Patient, Physician and Professionalism (P4) 1B Cr. 1**

Provides the opportunity to learn, practice, and apply knowledge and skills as a physician-in-training in diverse urban clinical and community outreach settings. Using a variety of methods, including clinical/community engagement, students engage in activities demonstrating the interconnectedness of the population, patient, and physician. P4 also emphasizes the need for students to develop their professional identity by behaving professionally and demonstrating respect to their colleagues, faculty, and patients and their families. By exploring sensitive topics and communicating with a diverse population, students' attitudes, as well as knowledge and skills, will be developed with a concentrated focus on understanding the patient's perspective, leading to true patient-centered care. Students will become effective team members, learn evidence-based theories to reduce healthcare disparities, recognize their own professional identity formation, and develop self-directed learning habits. Offered Yearly.

**Prerequisite:** MD1 5201

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5203 Population, Patient, Physician and Professionalism (P4) 1C Cr. 1**

Provides the opportunity to learn, practice, and apply knowledge and skills as a physician-in-training in diverse urban clinical and community outreach settings. Using a variety of methods, including clinical/community engagement, students engage in activities demonstrating the interconnectedness of the population, patient, and physician. P4 also emphasizes the need for students to develop their professional identity by behaving professionally and demonstrating respect to their colleagues, faculty, and patients and their families. By exploring sensitive topics and communicating with a diverse population, students' attitudes, as well as knowledge and skills, will be developed with a concentrated focus on understanding the patient's perspective, leading to true patient-centered care. Students will become effective team members, learn evidence-based theories to reduce healthcare disparities, recognize their own professional identity formation, and develop self-directed learning habits. Offered Yearly.

**Prerequisite:** MD2 5202

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5301 Service Learning 1-A Cr. 0**

Provides students the opportunity to learn, practice, and apply knowledge and skills as a physician-in-training in diverse urban clinical and community outreach settings. Through large group sessions, small group sessions, online modules, self-directed reflective assignments, and clinical and community engagement, students will actively participate in activities demonstrating the interconnectedness of the population, patient, and physician. The course also emphasizes the need for students to quickly develop their professional identity as a physician-in-training by behaving professionally and demonstrating respect to their colleagues, faculty, patients and their families. By engaging early with patients and potential patients, students' attitudes, as well as knowledge and skills, will be developed with a concentrated focus on understanding the patient's perspective, leading to true patient-centered care. Offered Yearly.

**MD1 5302 Service Learning 1-B Cr. 0**

Provides students the opportunity to learn, practice, and apply knowledge and skills as a physician-in-training in diverse urban clinical and community outreach settings. Through large group sessions, small group sessions, online modules, self-directed reflective assignments, and clinical and community engagement, students will actively participate in activities demonstrating the interconnectedness of the population, patient, and physician. The course also emphasizes the need for students to quickly develop their professional identity as a physician-in-training by behaving professionally and demonstrating respect to their colleagues, faculty, patients and their families. By engaging early with patients and potential patients, students' attitudes, as well as knowledge and skills, will be developed with a concentrated focus on understanding the patient's perspective, leading to true patient-centered care. Offered Yearly.

**MD1 5303 Service Learning 1-C Cr. 0**

Provides students the opportunity to learn, practice, and apply knowledge and skills as a physician-in-training in diverse urban clinical and community outreach settings. Through large group sessions, small group sessions, online modules, self-directed reflective assignments, and clinical and community engagement, students will actively participate in activities demonstrating the interconnectedness of the population, patient, and physician. The course also emphasizes the need for students to quickly develop their professional identity as a physician-in-training by behaving professionally and demonstrating respect to their colleagues, faculty, patients and their families. By engaging early with patients and potential patients, students' attitudes, as well as knowledge and skills, will be developed with a concentrated focus on understanding the patient's perspective, leading to true patient-centered care. Offered Yearly.

**MD1 5511 Community Engagement Elective 1A Cr. 2**

Provides students with an opportunity to explore and understand the experience of under-served patients as they navigate community health services in Southeast Michigan. Medical students interact with patients or participants and staff to learn the circumstances and challenges faced with limited resources, to foster empathy, compassion, respect and humanistic care. Meeting with agency leaders and staff students learn about program design, administration and operation through outreach and mentoring volunteering. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5512 Community Engagement Elective 1B Cr. 3**

Provides students with an opportunity to explore and understand the experience of under-served patients as they navigate community health services in Southeast Michigan. Medical students interact with patients or participants and staff to learn the circumstances and challenges faced with limited resources, to foster empathy, compassion, respect and humanistic care. Meeting with agency leaders and staff students learn about program design, administration and operation through outreach and mentoring volunteering. Offered Yearly.

**Prerequisite:** MD1 5511

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5521 Medical Education Research Elective 1A Cr. 2**

Society places a large emphasis on education yet understanding the basic science of teaching and learning is neglected. That is, research exploring the effectiveness of curriculum, teaching, and learning strategies on student outcomes has not been a priority in medical education. To train students and residents for the practice of medicine in the 21st century, we must continue to be innovative in our curriculum and teaching, stay current with new technology, and be able to demonstrate the effectiveness of our programs through the practice of medical education research. To address this issue the Wayne State University School of Medicine has developed a medical education research course. The purpose of this course is to introduce undergraduate medical students to the field of medical education research and to have them participate in medical education research activities. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5522 Medical Education Research Elective 1B Cr. 3**

Society places a large emphasis on education yet understanding the basic science of teaching and learning is neglected. That is, research exploring the effectiveness of curriculum, teaching, and learning strategies on student outcomes has not been a priority in medical education. To train students and residents for the practice of medicine in the 21st century, we must continue to be innovative in our curriculum and teaching, stay current with new technology, and be able to demonstrate the effectiveness of our programs through the practice of medical education research. To address this issue the Wayne State University School of Medicine has developed a medical education research course. The purpose of this course is to introduce undergraduate medical students to the field of medical education research and to have them participate in medical education research activities. Offered Yearly.

**Prerequisite:** MD1 5521

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5531 Leadership and External Affairs Development (LEAD)/Medical Political Action (MPAC) Elective 1A Cr. 2**

The MPAC program elective provides students with an opportunity to learn, practice and apply knowledge and skills as physician healthcare leaders and advocates. Students will learn how to engage in advocacy to improve healthcare for patients and communities and to improve the health systems where they deliver care. Working with organized medicine, students will author solutions and meet with governmental leaders to present and advocate for reforms and improvements to the delivery of care. Students will learn about the use of media as a tool for advocacy and learn about philanthropy as it relates to healthcare. The program also serves as a primer on leadership development topics, by emphasizing the need for students to develop their professional identity by dressing professionally, arriving on time, and behaving professionally and demonstrating respect to their patients, peers, colleagues, supervisors, and others and by maintaining professional conduct and composure when conflict occurs. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5532 Leadership and External Affairs Development (LEAD)/Medical Political Action (MPAC) Elective 1B Cr. 3**

The MPAC elective provides students with an opportunity to learn, practice and apply knowledge and skills as physician healthcare leaders and advocates. Students will learn how to engage in advocacy to improve healthcare for patients and communities and to improve the health systems where they deliver care. Working with organized medicine, students will author solutions and meet with governmental leaders to present and advocate for reforms and improvements to the delivery of care. Students will learn about the use of media as a tool for advocacy and learn about philanthropy as it relates to healthcare. The program also serves as a primer on leadership development topics, by emphasizing the need for students to develop their professional identity by dressing professionally, arriving on time, and behaving professionally and demonstrating respect to their patients, peers, colleagues, supervisors, and others and by maintaining professional conduct and composure when conflict occurs. Offered Yearly.

**Prerequisite:** MD1 5531

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5541 Research Elective 1A Cr. 2**

The ability to conduct and understand medical research is a valuable skill for any physician, since it has been the origin of many current treatments and procedures. Medical research goes far beyond the performance of experiments and collection of data. Research also involves the ability to critically read pertinent scientific literature and to develop hypotheses based on that reading. In addition, a researcher must design experiments to test hypotheses, analyze and critically evaluate resultant data, interpret results, and clearly present the findings. This course is designed to facilitate selection of a research mentor and to begin development of skills necessary to perform research. In this course, students will specifically learn to: 1) interact effectively and professionally with potential mentors, 2) critically read, evaluate, and discuss scientific literature at a level appropriate for a beginning research student, and 3) work professionally and efficiently as part of a team. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5542 Research Elective 1B Cr. 3**

The ability to conduct and understand medical research is a valuable skill for any physician, since it has been the origin of many current treatments and procedures. Medical research goes far beyond the performance of experiments and collection of data. Research also involves the ability to critically read pertinent scientific literature and to develop hypotheses based on that reading. In addition, a researcher must design experiments to test hypotheses, analyze and critically evaluate resultant data, interpret results, and clearly present the findings. This course is designed to facilitate selection of a research mentor and to begin development of skills necessary to perform research. In this course, students will specifically learn to: 1) interact effectively and professionally with potential mentors, 2) critically read, evaluate, and discuss scientific literature at a level appropriate for a beginning research student, and 3) work professionally and efficiently as part of a team. Offered Yearly.

**Prerequisite:** MD1 5541

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5551 Medical Quality Improvement Elective 1A Cr. 2**

Continuous quality improvement, or CQI, is a philosophy that organizations use to reduce waste, increase efficiency, and increase employee and customer satisfaction. It is an ongoing process that evaluates how an organization works and ways to improve its processes. When organizations focus on quality improvement, they can create significant positive change with the workforce, eliminate injuries that save patient lives, and reduce operating costs in hospitals and medical facilities. This course aims to introduce undergraduate medical students to the field of medical quality improvement, patient safety, and organizational leadership. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5552 Medical Quality Improvement Elective 1B Cr. 3**

Continuous quality improvement, or CQI, is a philosophy that organizations use to reduce waste, increase efficiency, and increase employee and customer satisfaction. It is an ongoing process that evaluates how an organization works and ways to improve its processes. When organizations focus on quality improvement, they can create significant positive change with the workforce, eliminate injuries that save patient lives, and reduce operating costs in hospitals and medical facilities. This course aims to introduce undergraduate medical students to the field of medical quality improvement, patient safety, and organizational leadership. Offered Yearly.

**Prerequisite:** MD1 5551

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5800 Directed Study Cr. 1-12**

Individualized curriculum designed to enhance knowledge and skills in preparation for the next phase of medical school. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year or Med Second Year; enrollment is limited to students with a major in Medicine; enrollment is limited to Medical level students; enrollment limited to students in the School of Medicine.

**MD1 5911 Business of Medicine Elective 1A: Introduction to the Healthcare Ecosystem Cr. 3**

This course creates a setting for 1st year medical students to explore various aspects of the business of medicine to gain insights into how they can affect the future of healthcare. Healthcare expenditures flow across intersections between patients and individuals/institutions that provide healthcare services. The flow of funds and clinical experience is impacted by those that purchase/finance healthcare, offer insurance and handle reimbursement, and those that design, produce, and distribute pharmaceuticals, medical technologies and devices, information systems and analytic services. This complex ecosystem affects access, cost, and quality of care. The quest for improved access and patient outcomes and cost containment is fueling changes across the healthcare landscape. Students will examine these changes and develop a multidisciplinary perspective by learning from individuals and organizations affecting the rate and flow of care, services, information and money in the health system. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

**MD1 5912 Business of Medicine Elective 1B: Healthcare Ecosystem Explorations Cr. 3**

The purpose of this course is to create a setting where 1st year medical students can gain confidence and experience interacting with subject matter experts operating throughout the healthcare ecosystem, and students delve deeper into various dimensions of this ecosystem via student-led panel discussions and team-level activities and discussions. Students explore current and emerging policies and practices in the drive toward improved access and patient outcomes and cost containment. Students further develop a multidisciplinary perspective by learning from the individuals and organizations affecting the rate and flow of care, services, products, information, and money within the healthcare system. In-class activities are augmented with required fieldwork. Offered Yearly.

**Prerequisite:** MD1 5911

**Restriction(s):** Enrollment limited to students with a class of Med First Year.

## MD2 - Medical School: Year 2

**MD2 6001 Human Disease Foundations I Cr. 10**

Human Disease Foundations I launches the MD2 pre-clerkship segment of the MD degree program. This is the first of a 3-part series. This course builds on the normal structure and function of organ systems from Segment 1 to provide students with foundational knowledge of disease processes. The overall goal of the Human Disease Foundations series is to engage second-year medical students in learning the key concepts and foundational principles related to the etiology, pathogenesis, pathology, pathophysiology, clinical manifestations, basic principles of diagnosis, and treatment of disease processes. These courses emphasize foundational knowledge in pathophysiology, microbiology, immunology, genetics, and pharmacology. In Human Disease Foundations-I, we will cover the foundational aspects of the pathological and pathophysiological mechanisms of disease, clinical genetics, immunology, microbiology/infectious disease, and the musculoskeletal, peripheral nervous and integumentary systems. Offered Yearly.

**MD2 6002 Human Disease Foundations II Cr. 10**

Human Disease Foundations II continues the MD2 pre-clerkship segment of the MD degree program. This is the second course of a 3-part series. This course builds on the normal structure and function of these organ systems from Segment 1 to provide students with foundational knowledge of disease processes. The overall goal of the Human Disease Foundations series is to engage second-year medical students in learning the key concepts and foundational principles related to the etiology, pathogenesis, pathology, pathophysiology, clinical manifestations, basic principles of diagnosis, and treatment of disease processes. These courses emphasize foundational knowledge in pathophysiology, microbiology, immunology, genetics, and pharmacology. In Human Disease Foundations-II, we will cover the most important aspects of the pathology and pathophysiology mechanisms of diseases affecting the cardiopulmonary, gastrointestinal, and urinary systems. Offered Yearly.



**MD2 6003 Human Disease Foundations III Cr. 10**

Human Disease Foundations III concludes the MD2 pre-clerkship segment of the 4-year program leading to the MD degree. This is the last course of a 3-part series that provides medical students with foundational knowledge of disease processes, building on organ-based normal structure and function from Segment 1. The goal of Human Disease Foundations-III is to engage students in learning the key concepts and foundational principles related to etiology, pathology, pathophysiology, recognition of clinical presentations, basic principles of diagnosis, and treatment of disease processes which affect the hematologic/lymphatic, endocrine, reproductive and central nervous systems. This course emphasizes foundational knowledge in pathophysiology, microbiology, immunology, genetics, pharmacology, neurology and psychiatry. The knowledge gained will build a strong foundation for future clinical training on the internal medicine, obstetrics and gynecology, neurology, and psychiatry clerkships. Offered Yearly.

**MD2 6101 Clinical Skills 2A Cr. 1**

Designed to develop and demonstrate foundational knowledge and basic clinical skills in history-taking, patient examination, oral case presentation, clinical reasoning, and performance of procedures through exploration of pediatrics and general surgery. Students who are competent in these foundational skills will then proceed to develop advanced skills in patient interviewing and physical examination emphasizing a patient-centered empathic and compassionate approach incorporating the patient's perspective, socioeconomic background and cultural intelligence, and protection of patient privacy required to participate in early clinical experiences and service-learning activities. Offered Yearly.

**Prerequisite:** MD1 5103

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6102 Clinical Skills 2B Cr. 1**

Designed to develop and demonstrate foundational knowledge and basic clinical skills in history-taking, patient examination, oral case presentation, clinical reasoning and performance of procedures through exploration of emergency medicine, urology, and internal medicine. Students who are competent in these foundational skills will then proceed to develop advanced skills in patient interviewing and physical examination emphasizing a patient-centered empathic and compassionate approach incorporating the patient's perspective, socioeconomic background and cultural intelligence, and protection of patient privacy required to participate in early clinical experiences and service-learning activities. Offered Yearly.

**Prerequisite:** MD2 6101

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6103 Clinical Skills 2C Cr. 2**

Designed to develop and demonstrate foundational knowledge and basic clinical skills in history-taking, patient examination, oral case presentation, clinical reasoning and performance of procedures required to participate in clinical service-learning activities. Students who are competent in these foundational skills will then proceed to develop advanced skills in patient interviewing and physical examination emphasizing a patient-centered empathic and compassionate approach incorporating the patient's perspective, socioeconomic background and cultural intelligence, and protection of patient privacy required to participate in early clinical experiences. Offered Yearly.

**Prerequisite:** MD2 6102

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6201 Population, Patient, Physician and Professionalism (P4) 2-A Cr. 1**

P4 Segment 2 is a second year medical student course designed to guide students to: provide patient-centered and culturally responsive care, to become effective team members, to learn evidence based theories that reduce healthcare disparities, to recognize their own professional development, and to foster self-directed learning through use of flipped classroom models, case studies, and real world interactions in community projects that utilize an inter-professional approach to caring for specialized populations. Offered Yearly.

**MD2 6202 Population, Patient, Physician and Professionalism (P4) 2-B Cr. 1**

P4 Segment 2 is a second year medical student course designed to guide students to: provide patient-centered and culturally responsive care, to become effective team members, to learn evidence based theories that reduce healthcare disparities, to recognize their own professional identity formation, and to foster self-directed learning through use of flipped classroom models, case studies, and real world interactions in community projects that utilize an inter-professional approach to caring for specialized populations. Offered Yearly.

**MD2 6203 Population, Patient, Physician and Professionalism (P4) 2-C Cr. 1**

P4 Segment 2 is a second year medical student course designed to guide students to: provide patient-centered and culturally responsive care, to become effective team members, to learn evidence based theories that reduce healthcare disparities, to recognize their own professional development, and to foster self-directed learning through use of flipped classroom models, case studies, and real world interactions in community projects that utilize an inter-professional approach to caring for specialized populations. Offered Yearly.

**MD2 6301 Service Learning 2-A Cr. 0**

Segment 2 Service Learning is a second year medical school course designed to guide students to: provide patient-centered and culturally responsive care, to become effective team members, to learn evidence based theories that reduce healthcare disparities, to recognize their own professional identity formation, and to foster self-directed learning through use of flipped classroom models, case studies, and real world interactions in community projects that utilize an inter-professional approach to caring for specialized populations. Offered Yearly.

**MD2 6302 Service Learning 2-B Cr. 0**

Builds on concepts learned in the first segment with additional emphasis on equipping trainees to provide patient-centered and culturally responsive care to distinct patient populations living in Detroit. Topics of discussion include nutrition-related chronic disease, veteran health, sexual health, homeless health, school-based health, and healthcare provided to those with disabilities. Through large group sessions, small group sessions, online modules, and service-learning activities, trainees will become effective inter-professional team members, learn how to reduce health care disparities, improve professional development, and foster self-directed learning skills. Offered Yearly.

**MD2 6303 Service Learning 2-C Cr. 0**

Builds on concepts learned in the first segment with additional emphasis on equipping trainees to provide patient-centered and culturally responsive care to distinct patient populations living in Detroit. Topics of discussion include nutrition-related chronic disease, veteran health, sexual health, homeless health, school-based health, and healthcare provided to those with disabilities. Through large group sessions, small group sessions, online modules, and service-learning activities, trainees will become effective inter-professional team members, learn how to reduce health care disparities, improve professional development, and foster self-directed learning skills. Offered Yearly.

**MD2 6401 Clinical Experiential Course 2-A Cr. 1**

The course is focused on ambulatory clinical exposure with the overall objective of developing students as medical professionals, patient advocates, and skilled clinicians. Offered Yearly.

**MD2 6402 Clinical Experiential Course 2-B Cr. 1**

The course is focused on ambulatory clinical exposure with the overall objective of developing students as medical professionals, patient advocates, and skilled clinicians. Offered Yearly.

**MD2 6403 Clinical Experiential Course 2-C Cr. 1**

The course is focused on ambulatory clinical exposure with the overall objective of developing students as medical professionals, patient advocates, and skilled clinicians. Offered Yearly.

**MD2 6511 Community Engagement Elective 2A Cr. 2**

Provides students with an opportunity to explore and understand the experience of under-served patients as they navigate community health services in Southeast Michigan. Medical students interact with patients or participants and staff to learn the circumstances and challenges faced with limited resources, to foster empathy, compassion, respect and humanistic care. Meeting with agency leaders and staff students learn about program design, administration and operation through outreach and mentoring volunteering. Offered Yearly.

**Prerequisite:** MD1 5512

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6512 Community Engagement Elective 2B Cr. 3**

Provides students with an opportunity to explore and understand the experience of under-served patients as they navigate community health services in Southeast Michigan. Medical students interact with patients or participants and staff to learn the circumstances and challenges faced with limited resources, to foster empathy, compassion, respect and humanistic care. Meeting with agency leaders and staff students learn about program design, administration and operation through outreach and mentoring volunteering. Offered Yearly.

**Prerequisite:** MD2 6511

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6521 Medical Education Research Elective 2A Cr. 2**

Society places a large emphasis on education yet understanding the basic science of teaching and learning is neglected. That is, research exploring the effectiveness of curriculum, teaching, and learning strategies on student outcomes, has not been a priority in medical education. To train students and residents for the practice of medicine in the 21st century, we must continue to be innovative in our curriculum and teaching, stay current with new technology and be able to demonstrate the effectiveness of our programs through the practice of medical education research. The purpose of this course is to leverage the knowledge and skills that students acquired in MD1 Medical Education Research and apply them to medical education research projects and topics. Offered Yearly.

**Prerequisite:** MD1 5522

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6522 Medical Education Research Elective 2B Cr. 3**

Society places a large emphasis on education yet understanding the basic science of teaching and learning is neglected. That is, research exploring the effectiveness of curriculum, teaching, and learning strategies on student outcomes, has not been a priority in medical education. To train students and residents for the practice of medicine in the 21st century, we must continue to be innovative in our curriculum and teaching, stay current with new technology and be able to demonstrate the effectiveness of our programs through the practice of medical education research. The purpose of this course is to leverage the knowledge and skills that students acquired in the Medical Education Research electives completed so far and apply them to medical education research projects and topics. Offered Yearly.

**Prerequisite:** MD2 6521

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6531 Leadership and External Affairs Development (LEAD)/Medical Political Action (MPAC) Elective 2A Cr. 2**

Section 1 was focused on primary content to ensure students have a basic understanding of the health policy and political process. Section 2 of the program will focus on applying that knowledge base to a real advocacy project. Upon completion of section 2, students will have the necessary skills to advocate on health policies issues on their own or in collaboration with their colleagues. The goal of the MPAC program is to support the leadership and advocacy development of medical students to better prepare them to become physician leaders for their patients, colleagues, and community. Offered Yearly.

**Prerequisite:** MD2 6532

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6532 Leadership and External Affairs Development (LEAD)/Medical Political Action (MPAC) Elective 2B Cr. 3**

Section 1 was focused on primary content to ensure students have a basic understanding of the health policy and political process. Section 2 of the program will focus on applying that knowledge base to a real advocacy project. Upon completion of section 2, students will have the necessary skills to advocate on health policies issues on their own or in collaboration with their colleagues. The goal of the MPAC program is to support the leadership and advocacy development of medical students to better prepare them to become physician leaders for their patients, colleagues, and community. Offered Yearly.

**Prerequisite:** MD2 6531

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6541 Research Elective 2A Cr. 2**

In the preceding M1 Research Electives, students learned to select and interact with a mentor, to critically read, evaluate, and discuss scientific literature at a beginner's level, to write a scientific mini-review, and to write a research proposal. This course is designed to further develop the skills learned in the M1 electives and to enhance a student's hands-on research skills by providing opportunities to perform research under the guidance of an individual mentor. In this course, students will specifically learn to: 1) apply their knowledge of research skills to perform scientific research in a laboratory under the guidance of a mentor, 2) critically read, evaluate, and discuss scientific literature at a level appropriate for an advanced research student, 3) interact effectively and professionally with a chosen mentor, and 4) work professionally and efficiently as part of a team of peers and other researchers. Offered Yearly.

**Prerequisite:** MD1 5542

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6542 Research Elective 2B Cr. 3**

In the preceding M2 Research Elective A course, students further developed the research skills they had learned in the M1 electives and enhanced their hands-on research skills by performing research under the guidance of their mentor. This course is designed to enhance and sharpen the skills learned in the previous research electives. Here, students will specifically learn to: 1) apply their knowledge of research skills to perform scientific research in a laboratory under the guidance of a mentor, 2) apply their knowledge of research and presentation skills to prepare and professionally present a research presentation, 3) critically read, evaluate, and discuss scientific literature at a level appropriate for an advanced research student, 4) critically listen to and evaluate a scientific presentation, 5) interact effectively and professionally with a chosen mentor, and 6) work professionally and efficiently as part of a team of peers and other researchers. Offered Yearly.

**Prerequisite:** MD2 6541

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6561 Directed Teaching in a Medical Education Environment Elective 2A Cr. 1**

Directed teaching in a medical school setting for which advanced students are preparing underclass peers for success in the medical education program. Includes near-peer tutoring and/or coaching opportunities. Seminars in which professional learning opportunities centers on teaching methods, industry best practices, and discussion of educational issues in various fields are explored. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6562 Directed Teaching in a Medical Education Environment Elective 2B Cr. 1**

Directed teaching in a medical school setting for which advanced students are preparing underclass peers for success in the medical education program. Includes near-peer tutoring and/or coaching opportunities. Seminars in which professional learning opportunities centers on teaching methods, industry best practices, and discussion of educational issues in various fields are explored. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6563 Directed Teaching in a Medical Education Environment Elective 2C Cr. 1**

Directed teaching in a medical school setting for which advanced students are preparing underclass peers for success in the medical education program. Includes near-peer tutoring and/or coaching opportunities. Seminars in which professional learning opportunities centers on teaching methods, industry best practices, and discussion of educational issues in various fields are explored. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6571 Medical Quality Improvement Elective 2A Cr. 2**

Quality improvement (QI) is a systematic, formal approach to the analysis of practice performance and efforts to improve performance. When organizations focus on quality improvement, they can create significant positive change. QI within medical institutions will help the organizations save patient lives along with reducing the cost of hospital and medical offices' daily operations. A focus on quality improvement in a medical setting can also better prepare a future physician to handle a large-scale emergency or medical event, as illustrated during the COVID-19 pandemic. In this course, students will gain an understanding of the origin of quality improvement methodologies and the impact it has on health care and patient safety. Offered Yearly.

**MD2 6572 Medical Quality Improvement Elective 2B Cr. 3**

Quality improvement (QI) is a systematic, formal approach to the analysis of practice performance and efforts to improve performance. When organizations focus on quality improvement, they can create significant positive change. QI within medical institutions will help the organizations save patient lives along with reducing the cost of hospital and medical offices' daily operations. A focus on quality improvement in a medical setting can also better prepare a future physician to handle a large-scale emergency or medical event, as illustrated during the COVID-19 pandemic. In this course, students will gain an understanding of the origin of quality improvement methodologies and the impact it has on health care and patient safety. Offered Yearly.

**Prerequisite:** MD1 5551 and MD1 5552 and MD2 6571

**MD2 6600 Directed Study Cr. 1-12**

Students participate in an individualized curriculum designed to enhance their knowledge and skills in preparation for the next phase of medical school. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med First Year or Med Second Year; enrollment is limited to students with a major in Medicine; enrollment is limited to Medical level students; enrollment limited to students in the School of Medicine.

**Repeatable for 12 Credits**

**MD2 6601 Step 1 Preparation Course 2A Cr. 1**

All students will be provided with a structured Step 1 Prep Course to help facilitate and support their efforts during M2. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6602 Step 1 Preparation Course 2B Cr. 1**

All students will be provided with a structured Step 1 Prep Course to help facilitate and support their efforts during M2. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6603 Step 1 Preparation Course 2C Cr. 1**

All students will be provided with a structured Step 1 Prep Course to help facilitate and support their efforts during M2. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

**MD2 6605 Clinical Synthesis and Integration Course Cr. 3**

This Clinical Synthesis and Integration (CSI) course builds on the normal and abnormal structure and function of organ systems from Human Body Foundations & Human Disease Foundation to provide students with the integrated foundational knowledge of Biomedical science, Clinical science and Health System Science. The course aims to engage second-year medical students in synthesizing & integrating the key concepts and foundational principles related to the etiology, pathogenesis, morphology, critical investigations, interpreting lab values, and clinical manifestations. Learners will also continue to develop and demonstrate basic clinical skills in history-taking, patient examination, note writing, oral case presentation, clinical reasoning and performance of procedures required to participate in clinical service-learning activities. Students will practice advanced skills in patient interviewing and physical examination emphasizing a patient-centered, empathic, and compassionate approach. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

### **MD2 6610 Step-I Enhancement Course Cr. 2**

As the first of what will be a lifetime of licensure exams, preparing for the USMLE Step 1 often creates a great deal of stress. While some amount of stress is a natural part of test preparation, it does not have to be debilitating. The Wayne State School of Medicine serves to mitigate some stress by providing students with resources and skills to help them optimize their performance on Step 1. This course provides students with a structured Step 1 Prep Course program to facilitate and support their efforts during the dedicated study period. Central to students' success on Step 1 is a clear understanding of student's strengths and deficiencies, which serve to inform the development of a study plan. Offered Yearly.

### **MD2 6800 Preparation for Clerkships Cr. 5**

This course is required for all students who plan to begin clerkships in April of each year. It is designed to prepare students for the transition from the pre-clerkship classroom to the clerkship experience. Through lectures, small group sessions, and skills-building workshops, students will learn about their expected roles and responsibilities as members of the health care team, particularly an inpatient clinical team, and practice skills such as preparing oral and written presentations for inpatient rounds and performing basic procedures. During this course, students will also complete their mandatory training in electronic health records (EHR), infection control, basic cardiovascular life support (BLS), and HIPAA certification. Students will complete online curricula in advanced patient communication skills, professionalism and ethics. Effective use of the electronic health record as the platform for medical care will be a key component. Offered Yearly.

### **MD2 6911 Business of Medicine Elective 2A: Innovation and Entrepreneurship: Foundations Cr. 3**

Students learn about the fundamentals and types of innovation and entrepreneurship in healthcare settings. Key trends shaping the pace and direction of innovation are examined as students explore the challenges and opportunities facing physician entrepreneurs attempting to design and introduce innovative solutions which are desirable, feasible and viable within the healthcare ecosystem. The upward pressure on costs associated with ongoing changes in payment models and in the operations of healthcare systems, coupled with search for improved outcomes and the abatement of health disparities underscores the importance of relevant, effective, and cost-efficient innovation efforts. The costs associated with translational and clinical research and development informed by patients, physicians and service providers engaged at the point of care promotes progress along commercialization pathways and can yield higher rates of success. In-class activities are augmented with required fieldwork. Offered Yearly.

**Prerequisite:** MD1 5912

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

### **MD2 6912 Business of Medicine Elective 2B: Innovation and Entrepreneurship: Following the Roadmap Cr. 3**

Students continue to explore the challenges and opportunities facing physician entrepreneurs while taking concrete steps to design and develop an innovative solution by testing and validating the roadmap they developed in the Business of Medicine – Innovation and Entrepreneurship Foundations course. Students work in small teams with the assistance of a select multidisciplinary faculty group drawn from the WSU School of Medicine and the Mike Ilitch School of Business as well as other schools and colleges and the assistance of external coaches and mentors. In-class activities are augmented with required fieldwork. Offered Yearly.

**Prerequisite:** MD2 6911

**Restriction(s):** Enrollment limited to students with a class of Med Second Year.

## **MD3 - Medical School: Year 3**

### **MD3 7100 Family Medicine Clerkship Cr. 4**

Practice of family medicine learned in a community-based primary care setting; experiencing care and treatment of children, adolescents, and adults with acute and chronic disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

### **MD3 7200 Internal Medicine Clerkship Cr. 12**

Practical experience in recognition, evaluation, diagnosis, and management of hospitalized adult patients with acute non-surgical illnesses. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

### **MD3 7300 Pediatrics Clerkship Cr. 6**

Practical experience in recognition, evaluation, diagnosis, and management of pediatric patients in in-patient and ambulatory care settings. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

### **MD3 7400 Surgery Clerkship Cr. 12**

Practical experience in recognition, evaluation, diagnosis, and management of patients in general surgery or surgical sub-specialties. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

### **MD3 7500 Psychiatry Clerkship Cr. 4**

Practical experience in recognition, evaluation, diagnosis, and management of patients with behavioral and emotional brain disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

### **MD3 7600 Obstetrics and Gynecology Clerkship Cr. 6**

Practical experience in recognizing, evaluating, diagnosing, and managing the health care of women in a variety of inpatient and outpatient settings. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

### **MD3 7700 Neurology Clerkship Cr. 4**

Practical experience in recognition, evaluation, diagnosis, and management of patients with disorders of the nervous system. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

### **MD3 7800 Directed Study Cr. 1-12**

Individualized curriculum designed to enhance knowledge and skills in preparation for the next phase of medical school. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

### **MD3 7950 Clinical Reasoning, Integration, Skills and Practice (CRISP) Cr. 1**

This is a yearlong longitudinal course that gives the WSU Segment 3 students advanced skills in areas common to all specialties and is an integral part of the 4-year clinical excellence program as part of the Highways to Excellence® curriculum. Including sessions on clinical reasoning, interprofessional health care, continuation of the ultrasound curriculum in the clinical setting, leadership, career planning, wellness and other topics that help unify the core curriculum. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year.

**Repeatable for 4 Credits**



# MD4 - Medical School: Year 4

## **MD4 8015 Senior Clinical Reasoning, Integration, Skills and Practice (CRISP) Cr. 1**

This is a year-long longitudinal course that gives the WSU senior student advanced skills in areas common to all specialties and completes the 4-year clinical excellence program as part of the Highways to Excellence® curriculum. It will encompass a number of areas that are best taught to the experienced student. There is a mixture of online courses and assignments, in person workshops and asynchronous content. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 4 Credits**

## **MD4 8020 Medical Education Cr. 6**

Processes involved in evaluation of courses; coordination of the assessment of Year 1-2 courses. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8025 Curriculum Development Cr. 6**

This is a directed student course in which students engage in individualized projects that are designed to reflect their self-directed learning skills that they have developed while at Wayne State University School of Medicine. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8035 Students Teaching and Educating Peers Cr. 6**

Students will learn and apply techniques to prepare medical students for the Step 1 examination, as well as lead Step 1 preparation sessions. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8036 Independent Service Learning Cr. 3,6**

Students will participate in a Service Learning Program within a community organization providing direct service to the organizations specific clientele. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8040 Special Topics in Anatomy and Cell Biology Cr. 3,6**

Review of research training in gross anatomy, cell biology, histology, embryology, or neuroscience. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8041 Gross Anatomy Teaching Lab Cr. 6**

Students taking this elective will gain teaching and mentorship experience in preparation for a career in academic medicine by teaching freshman medical students dissection skills in the anatomy labs. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8045 Medical Ethics Cr. 6**

Medical ethics issues and concerns in the ICU, PICU, NICU, as well as those associated with a medical ethics committee. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8046 Street Medicine: Detroit Cr. 3,6**

Knowledge and skills necessary to promote health, prevent illness, and manage the common chronic, and minor acute primary care needs of adults who are experiencing homelessness in Detroit. Clinical Experience (CLN): students will complete 120 hours of clinical education experience during their one-month rotation Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8050 General Anesthesiology Cr. 3,6**

Practice of anesthesia including preoperative assessment, delivery of general and regional anesthesia, equipment use, and monitoring techniques. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 18 Credits**

## **MD4 8060 Pain Management Cr. 6**

Diagnosis, treatment and management of acute and chronic pain syndromes related to malignant and nonmalignant diseases. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8070 Pediatric Anesthesiology Cr. 6**

Preoperative assessment, delivery of general and regional anesthesia, equipment use, and monitoring techniques in pediatric patients. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8090 Military Officer Training Cr. 6**

The course will develop critical thinking in decision making processes that incorporate medical decisions within both a battlefield scenario as well as in a hospital setting. This course will emphasize how an officer fits within the TEAMSTEP concept of medical management which enforces medical excellence, team building within a hospital. This course is only available to students in the HPSP program. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8100 Law and Medicine Cr. 3,6**

Legal issues associated with practicing clinical medicine. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

## **MD4 8110 Healthcare: Systems, Quality, Safety and Social Determinants Cr. 6**

The goal of every health care provider and organization is to provide safe, timely, equitable, effective, efficient, and patient-centered care. In order to do this, students need foundational knowledge and skills related to safety, quality, leadership and the business of medicine and Students electing this course will join the WSUSOM chapter of the Institute of Healthcare Improvement. Students will also complete a learning game and seven online learning modules to better understand how to provide care to underserved and disadvantaged patients. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8115 Special Topics: Interprofessional Education Cr. 2**

This interprofessional course is for health professional student learners in the areas of advanced practice. The course allows health professional students to learn about, from and with each other, how each discipline contributes to the healthcare team, the importance of effective communication, the role of team collaboration and preparing health care professionals for collaborative practice with a focus on clinical decision making in interdisciplinary teams. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate, Medical or Professional level students.

**Equivalent:** NUR 7115, PAS 7115, PPR 7115, SW 7115

**MD4 8120 General Dermatology Cr. 3,6**

Fundamentals of diagnosing, treating and managing patients with common dermatologic disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 18 Credits**

**MD4 8130 Dermatology Research Cr. 3,6**

Knowledge and experience in dermatology research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8140 General Emergency Medicine Cr. 3,6**

Initial evaluation, stabilization, and management of patients in the emergency department. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8145 ER Ultrasound Cr. 6**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8150 Emergency Medicine Research Cr. 3,6**

Process and participation in emergency medicine research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8160 Emergency Medicine Core Clerkship Cr. 7**

Evaluation, stabilization, and treatment of a variety of patients presenting to the ER with urgent and emergent illness and trauma. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8165 Advanced Emergency Medicine Cr. 6**

Being the primary provider for patients while in the ER, from initial evaluation to completion of disposition. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8166 Student Run Free Clinic - Underserved Populations Cr. 6**

Students are involved in supervision of day-to-day operations of Student Run Free Clinic. This includes research, mentorship, patient support and advocacy, and non-clinic based learning. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8170 General Family Medicine Cr. 3,6**

Enhancement of knowledge and skills in conducting a history/physical, diagnosing/managing patients, and participation in common office procedures in the outpatient setting. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8171 Rural Family Medicine Cr. 3-6**

Students will gain a better understanding of the unique needs, challenges and rewards of practicing medicine in a medically underserved, rural or small-town community. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8172 Family Medicine Student Run Free Clinic Cr. 6**

Students are involved in supervision of day-to-day operations of Student Run Free Clinic. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8173 Patient Centered Medical Home and Quality Curriculum Cr. 6**

The Patient Centered Medical Home and Quality rotation exposes students to the concepts of the patient centered medical home and quality metrics as they pertain to current practices in family medicine. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8175 MPH Master's Project Cr. 6**

Students apply the knowledge and skills gained from classroom and field experiences to a scholarly project of their own design and execution. The final products are a written paper and an oral presentation. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8176 Public Health and Clinical Medicine Cr. 6**

Students will complete a set of activities that introduce students to various aspects of public health and its role in clinical patient care. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8210 Acting Internship: Family Medicine Cr. 7**

Students expand on Year 3 family medicine clerkship experience with more intensive involvement in select patient populations. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8220 Hospice/Palliative Medicine Cr. 3,6**

Care of terminally ill patients; basic communication and interactive skills associated with these patients and their families. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8230 Maternal and Child Health Cr. 6**

Gaining experience in an aggressive family medicine OB service. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8250 Sports Medicine Cr. 6**

Knowledge and skills to assess the fitness and health risks of athletes. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8255 International Elective Cr. 6**

Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8258 International Away Cr. 6**

Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8260 Allergy and Clinical Immunology Cr. 3,6**

Conducting an allergic H & P; understanding basic mechanisms, pathophysiology and testing of allergic and immunologic disorders.

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8261 Advanced Physical Diagnosis Cr. 6**

Students will refine their basic physical examination, as well as advance their skills in evaluating hypertension, thyroid disease, cardiac murmurs, breast abnormalities, and geriatric assessment. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8262 Ambulatory Subspecialty in Internal Medicine Cr. 6**

Students will learn the practice of ambulatory internal medicine, with an emphasis placed upon bedside teaching, physical diagnosis and in-depth discussion of the clinical, diagnostic and therapeutic aspects of each case. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8264 Independent Study in Medical Education Cr. 3,6**

Students will improve their skills as learners and critical thinkers, and gain an appreciation of the importance of lifelong learning. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8265 Urban Medicine for Visiting Students Cr. 6**

Students will learn academic internal medicine in an urban setting with an emphasis on recognizing, studying, treating, and preventing disparities in healthcare. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8270 Ambulatory Med Cr. 3,6**

There is an increased role of ambulatory medicine in all specialties. By selecting this course, the student will gain valuable experience at an advanced level in an ambulatory setting based on the specialty of their choosing. This course will expose the student to the patient's needs as they differ in the outpatient environment, giving the student a more complete picture of longitudinal patient care outside hospitalization. Students who take this course will gain an appreciation and thorough expert understanding of how medical care is delivered in the clinic, while simultaneously exposing themselves to their planned specialty in the setting in which they will most likely be responsible for patient care after graduation. Students will select their top three sites/specialties in which to further develop their skills and be assigned a spot at a Michigan Healthcare Professionals (MHP) location based upon those selections. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8280 Cardiology Cr. 3,6**

Basic history/physical, diagnostic, treatment and management skills associated with common inpatient cardiac problems. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8281 Interventional Cardiology Cr. 6**

Exposure to an interventional lab. Gaining familiarity with the clinical utility of routine cardiovascular interventions and hemodynamic measurements. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8290 Cardiology Consultation Cr. 3,6**

Skills needed to consult with medical and surgical patients with cardiac problems. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 18 Credits**

**MD4 8310 Coronary Care Unit Cr. 6**

Diagnosis and treatment of common cardiac problems; care for critically ill patients admitted to cardiac care unit. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 18 Credits**

**MD4 8320 Critical Care Medicine Cr. 3,6**

Management of critically ill patients to improve diagnostic, problem solving, assessment, and treatment skills. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 18 Credits**

**MD4 8340 Endocrine/Bone and Mineral Metabolism Cr. 3,6**

Diagnosing, treating, and managing patients with metabolic bone diseases. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8350 Endocrinology Research Cr. 6**

The research process; participation in research associated with medical endocrinology. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8360 Endocrine/Metabolism Cr. 3,6**

Techniques of conducting a history and physical; diagnostic, therapeutic, and laboratory approaches to endocrine disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8365 Scholarly Writing for Critical Appraisal of Clinical Research Cr. 6**

Peer review for clinical research practice. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8366 Scholarly Editing for Critical Appraisal of Clinical Research Cr. 6**

Scholarship is defined as creating new knowledge. Scholarship in an academic environment requires peer review. Editors work with their assigned peer reviewers; both have shared responsibilities: ensure scientific validity and suggest ways to improve the manuscript. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8370 Gastroenterology Cr. 3,6**

Conducting a history and physical exam, and diagnosing, treating, and managing patients with common gastrointestinal diseases. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8380 Gastroenterology Research Cr. 6**

The research process; participation in specific gastroenterology research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8390 General Internal Medicine Inpatient Cr. 3,6**

Common problems encountered in an internal medicine inpatient clinical setting. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8391 Internal Medicine: Miscellaneous Cr. 3,6**

Students learn various topics and issues in general internal medicine. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8393 Teaching, Learning, and Clinical Reasoning Cr. 6**

This course is designed to provide fourth-year students with the opportunity to cultivate their teaching skills in order to better prepare them for residency. Students will participate in workshops on refining their teaching skills, with topics such as creating a positive teaching environment, preparing an effective lecture, and giving and receiving feedback. Students will teach sessions for junior medical students to help practice their improved skills and will also provide feedback to junior students. The course has reading requirements. Students will be evaluated by junior students and course director(s). In addition, students will refine their clinical reasoning through review of evidenced based clinical skills as well as advanced clinical reasoning. Students are required to attend a minimum of six teaching sessions (4 in-person sessions) at designated WSUSOM classes or clinical sessions. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8395 Clinical Pharmacology Cr. 6**

Four-week on-line elective where students use case-based scenarios to apply pharmacology principles in a clinical setting. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8400 Clinical Genetics Cr. 3,6**

Interviewing, conducting a physical examination, and other patient interactions in patients with suspected or known genetic diseases. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8420 Geriatric Medicine Cr. 3,6**

Conduct of a comprehensive assessment and treatment of a geriatric patient; factors affecting the health of the elderly. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8430 Hematology Cr. 3,6**

Familiarization with a variety of hematologic and oncologic disorders; how to diagnose, treat, and manage patients with these disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8440 HIV/AIDS Cr. 6**

Basic knowledge and skills associated with care of HIV-infected persons in outpatient and inpatient settings. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8450 Infectious Disease Cr. 3,6**

Evaluating, diagnosing and treating patients with acute and chronic infectious diseases. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 18 Credits**

**MD4 8460 Infectious Disease Research Cr. 6**

The research process; participation in specific infectious disease research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8470 Acting Internship: Internal Medicine Cr. 7**

Expanding on Year 3 internal medicine clerkship experience; more intensive involvement in select patient populations. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8480 Medicine/Pediatrics Cr. 3,6**

Aspects of the day-to-day practice of a physician specializing in an internal medicine/pediatric practice. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8490 Nephrology Cr. 3,6**

Experience in diagnosing and managing patients with acute and chronic nephrologic problems. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8510 Oncology: Medical Cr. 3,6**

Evaluation, diagnosis, treatment and management of patients with oncologic conditions. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8520 Oncology: Outpatient Cr. 3,6**

Cancer patients in the outpatient setting: initial evaluations, types of malignant diseases, role of staging, conducting a focused follow-up of cancer patients. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8530 Oncology Research Cr. 6**

The research process; participation in research involving patients with cancer. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8540 Otolaryngology Cr. 3,6**

History and basic head and neck examination on patients with otolaryngologic disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8550 Otolaryngology Medical and Surgical: Head and Neck Cr. 3,6**

Additional training in otolaryngology head and neck surgery. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8560 Otolaryngology Research Cr. 6**

The research process; participation in otolaryngology research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8570 Palliative Medicine Cr. 3,6**

Understanding of and skills in palliative medicine: communication, cultural issues, psycho-emotional and spiritual aspects of end of life care and death and dying. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.



**MD4 8580 Primary Care Medicine Cr. 6**

Common problems encountered in internal medicine outpatient clinical setting. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8590 Pulmonary Medicine Cr. 3,6**

Diagnosis and management of a variety of pulmonary disorders; diagnosis of acute and chronic respiratory failure; interpretation of pulmonary tests. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8600 Pulmonary and Sleep Research Cr. 6**

The research process; participation in pulmonary and sleep research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8610 Pulmonary Consultation Cr. 6**

Diagnosis and management of a variety of pulmonary disorders; diagnosis of acute and chronic respiratory failure; interpretation of pulmonary tests. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8620 Rheumatology Cr. 3,6**

Diagnosis and management of common rheumatologic problems; understanding ancillary procedures and lab tests. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8630 Sleep Disorders Cr. 6**

Interviewing, physical examination, diagnosis, and therapy of patients with sleep disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8640 Molecular Medicine Cr. 3,6**

State-of-the-art molecular biological research and methods, relating to basic and applied research of human disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8650 General Neurology Cr. 3,6**

Evaluation, diagnosis, treatment and management of patients with an array of general neurologic conditions. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8660 Neurology Consult Cr. 6**

Pathogenesis, genetics, neurochemistry, imaging, diagnostic testing, presentation and treatment of Alzheimer's and other forms of dementia. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8690 Movement Disorders Cr. 6**

Evaluation, diagnosis, treatment and management of patients with neurologic movement disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8700 Neurology - Oncology Cr. 6**

Diagnosis, treatment and management of patients with malignancies of the neurologic system. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8710 Neurologic Sleep Disorders Cr. 6**

Operations of a sleep lab and evaluation of patients with sleep disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8730 Neurology Pediatrics Cr. 3,6**

Diagnosis, treatment, and management of a variety of neurologic disorders of infancy and childhood. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8750 General Neurosurgery Cr. 3,6**

Preoperative, intraoperative, and post-operative care of neurologic patients. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8760 Neurosurgery Research Cr. 3,6**

Basic research principles as they apply to clinical questions in neurosurgery. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8770 Obstetrics/Gynecology Subinternship Cr. 7**

Senior students expand upon their Year 3 Obstetrics/Gynecology clerkship experience with more intensive involvement in select patient populations. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8780 General Gynecology Cr. 3,6**

Signs, symptoms, and management of both surgical and nonsurgical gynecologic disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8781 Family Planning and Abortion Cr. 3-6**

Students will learn the principles and counseling techniques for contraceptive management and abortion. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8790 Gynecologic Oncology Cr. 3,6**

Evaluation and treatment of patients presenting with a range of gynecologic malignancies. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8800 Obstetrics Cr. 3,6**

Signs, symptoms and management of normal/abnormal labor, and experience patients with intrapartum high risk conditions and intrapartum/postpartum complications. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8810 Obstetrics/Gynecology Cr. 3,6**

Care of inpatient and outpatient obstetric and gynecologic patients, and participation in obstetric and gynecological procedures. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8820 Obstetrical Ultrasound Cr. 6**

Basic knowledge and skills in obstetrical ultrasound. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8830 Maternal Fetal Medicine Cr. 3,6**

Experience patients with common medical and obstetrical complications; development of skills in fetal assessment and evaluation of high risk pregnancies. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8850 Nurse Midwifery Cr. 3,6**

Ambulatory women's health care delivery as performed by a certified nurse midwife, including management of labor and delivery. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8860 Reproductive Endocrine and Infertility Cr. 3,6**

Diagnosis and treatment of couples with infertility and reproductive endocrine disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8890 Ophthalmology Cr. 3,6**

Conducting basic eye examinations; evaluation methods, management and treatment of eye diseases. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8900 Ophthalmic Research Cr. 3,6**

The research process; participation in ophthalmic research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8910 General Orthopedic Surgery Cr. 3,6**

Conduct of an H & P; diagnosis and treatment of patients with orthopedic problems; participation in preoperative, operative, and post-operative care. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8914 Orthopaedic Surgery Research Cr. 3,6**

Students participate in current orthopaedic surgery and biomechanics research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8930 Orthopedic Traumatology Cr. 3,6**

Basic surgical principles and pathophysiology, diagnosis, and management of a variety of traumatic orthopedic conditions. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8940 General Pathology Cr. 3,6**

Functions of a clinical laboratory, including interpretation of surgical pathology. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8950 Anatomic Pathology Cr. 3,6**

Basic pathologic processes; how gross, microscopic and other techniques are applied to the diagnosis and treatment of disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8970 Forensic Pathology Cr. 3,6**

Basic mechanisms of injury; characteristic features of injury patterns; relationship between medicine and law. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8980 Tumor Genetics Cr. 6**

Role of cytogenetics and molecular cytogenetics in diagnosis, management and prognosis of a patient's disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8990 General Pediatrics Cr. 3,6**

Evaluating and managing children with common pediatric problems; aspects of normal growth and development. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8991 Child Abuse Identification and Treatment Cr. 6**

Students will learn the techniques to identify and report suspected child abuse and neglect, as well as methods of treatment and prevention. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 8992 Pediatric Pulmonary Cr. 6**

Students will learn the evaluation and treatment of pediatric patients with acute and chronic respiratory diseases. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9000 Adolescent Pediatrics Cr. 6**

Interviewing and physical examination on adolescent patients; normal physical, cognitive and psychosocial development of adolescent patients. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9010 Allergy, Immunology, and Rheumatology Cr. 3,6**

Day-to-day care of pediatric patients with common allergic, immunologic and rheumatologic disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9045 Pediatric Community Partnership Cr. 6**

Students will explore the intricate dynamics of social justice and systemic racism in relation to food insecurity. Students will delve into the intersectionality of food insecurity and early childhood development and education, while also critically assessing the effects of current interventions and engaging with local communities to craft innovative solutions that address these pressing issues. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9050 Pediatric Genetics Cr. 3,6**

Abnormal morphology of children; diagnostic skills in various inborn errors. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9060 Medical Toxicology and Poison Control Cr. 6**

Assessment and management of pediatric patients with suspected or known poisoning or toxic exposure. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9070 Neonatology Cr. 3,6**

Evaluation of healthy newborns; common newborn conditions; care of high risk infants and their mothers. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9080 Pediatric Cardiology Cr. 3,6**

Skills in taking and performing a cardiac exam; normal hemodynamics; natural history of children with congenital and acquired heart disease.

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9090 Pediatric Ear, Nose and Throat Cr. 3,6**

Entire scope of pediatric otolaryngology. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9100 Pediatric Emergency Medicine Cr. 3,6**

Observation and participation in care of children presenting with a wide range of conditions in pediatric emergency medicine. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9110 Pediatric Endocrinology and Diabetes Cr. 3,6**

Evaluation of normal physical growth and development; recognition of common pediatric endocrine problems. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9120 Pediatric Gastroenterology, Hepatology, and Nutrition Cr. 3,6**

Performance of a history and physical exam, development of a diagnosis, and caring for patients with disorders of the gastrointestinal tract. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9130 Pediatric Hematology/Oncology Cr. 3,6**

Basic skills to conduct an H & P and diagnose and treat children with hematologic and oncologic problems. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9140 Pediatric Infectious Disease Cr. 6**

Evaluation, diagnosis, treatment, and management of common pediatric infections. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9150 Pediatric Intensive Care Cr. 3,6**

Basic diagnostic and therapeutic approach to care of critically ill children. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9160 Pediatric Nephrology Cr. 3,6**

Basic skills to examine, diagnose and treat patients with common renal diseases. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9180 Pediatric Pathology: Autopsy and Surgical Cr. 3,6**

Correlation of clinical, anatomical and laboratory findings in diagnosing pediatric disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9190 Pediatric Plastic Surgery/Craniofacial Cr. 3,6**

Recognition and development of a treatment plan for congenital craniofacial anomalies and vascular lesions. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9200 Pediatric PMR Cr. 3,6**

Childhood functional impairments including head injury, spinal cord injury, cerebral palsy, neuromuscular diseases, sports medicine, and electromyography. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9210 Acting Internship: Pediatric Cr. 7**

Senior students expand upon Year 3 pediatric clerkship experience with more intensive involvement in select patient populations. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9230 Physical Medicine and Rehabilitation Cr. 3,6**

Performance of an H & P; development of greater understanding of diagnosis, management and treatment of patients with neuromuscular and musculoskeletal problems.] Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9240 Spinal Cord Injury Rehabilitation Cr. 3,6**

Management of patients with spinal cord injuries; role of rehabilitation team approach to spinal cord injuries. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Third Year or Med Fourth Year; enrollment is limited to students with a major in Medicine; enrollment is limited to Medical level students; enrollment limited to students in the School of Medicine.

**MD4 9261 Emergent and Consult Liaison Psychiatry Cr. 3,6**

Students will learn to assess psychiatric patients, manage acute intoxication and withdrawal syndromes, manage psychiatric patients with medical comorbidities and learn basic managed care principals. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9262 Emergency Psychiatry Cr. 3-6**

Students will learn to evaluate, diagnose, and treat psychiatric patients in an emergency setting. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9263 Clinical Electro-Physiology Research Cr. 3-6**

Students will participate in the academic research process, as well as learn the strengths and weakness of the different electrophysiological testing modalities. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9264 Psychiatry Research Cr. 3,6**

Students will participate in research projects and learn the clinical components associated with neuropsychiatric research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9265 Outpatient Psychiatry Cr. 3-6**

The student will observe routine outpatient practice and have an opportunity to evaluate new outpatients under the supervision of residents/staff. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9267 Brain Imaging Psychiatry Research Cr. 3,6**

Students will participate in research projects and learn the clinical components associated with neuropsychiatric research. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9270 Child and Adolescent Psychiatry Cr. 3,6**

Experience of a variety of children and adolescents with psychiatric disorders; evaluation of patients and provision of care. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9290 Psychiatric Consultation Cr. 3,6**

Knowledge and skills associated with the psychiatric interview; mental status examination; development of knowledge base in behavioral medicine and treatment of psychiatric illness. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9300 Psychiatry: Geriatrics Cr. 3,6**

Knowledge and skills associated with the psychiatric interview; mental status examination; interpretation of data, diagnosis, psychopharmacology and psychotherapy in geriatric patients. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year; enrollment is limited to students with a major in Medicine; enrollment is limited to Medical level students; enrollment limited to students in the School of Medicine.

**MD4 9320 Research and Practice in Addiction Psychiatry Cr. 3,6**

Diagnosis and management of individuals with addictive disorders; psychotherapeutic and pharmacotherapeutic interventions for problems with psychotropic substances. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9340 Substance Abuse Cr. 3,6**

Inpatient and outpatient treatment of substance use disorders. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9345 Psychiatric Care of Veterans Cr. 6**

Clinical Experience; Students will complete 160 hours of clinical education experience during their one-month rotation. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9350 General Diagnostic Radiology Cr. 3,6**

Basic techniques of imaging; skills to diagnose and interpret radiographic studies. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 18 Credits**

**MD4 9360 Intervention Radiology Cr. 3,6**

Role of interventional radiologic techniques in diagnosis and management of disease. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9380 Radiation Oncology Cr. 3,6**

Role of radiation therapy in variety of adult and pediatric malignancies. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9390 General Surgery Cr. 3,6**

Experience in a variety of elective and acute surgical cases; diagnostic skills; basic surgical techniques and procedures. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9392 Residency Preparation - Surgical Cr. 6**

Students will learn advanced surgical skills in preparation for their surgery residency program. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9393 Breast Surgery Cr. 6**

Students will gain exposure to the diagnosis and treatment of breast diseases at the Walt Comprehensive Breast Center. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9400 Acute Burn Care Cr. 6**

Physiologic principles and clinical management of burn victims. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9410 Cardiovascular Surgery Cr. 3,6**

Diagnosis and treatment of cardiology diseases using invasive surgical approaches. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9440 Pediatric Surgery Cr. 3,6**

Diagnosis and care of surgical disorders in children. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9470 Plastic and Reconstructive Surgery Cr. 3,6**

Evaluation, formulation of treatment plan, management of postoperative care, and participation in surgical procedures for patients requiring plastic surgery. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9480 Surgical Intensive Care Unit Cr. 3,6**

Care of critically ill surgical patients; common surgical intensive care unit procedures. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9490 Surgery Subinternship Cr. 7**

Senior students expand upon their Year 3 surgery clerkship experience with more intensive involvement in select patient populations. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9495 Advanced Maxillofacial Surgery Cr. 7**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9500 Transplant Surgery Cr. 3,6**

Basic surgical principles and pathophysiology, diagnosis and management of a variety of transplant surgical conditions. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9510 Acute Care Surgery Cr. 3,6**

Evaluation, diagnosis, treatment, and management of critically ill patients; basic procedures in the care of this population. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.



**MD4 9520 Vascular Surgery Cr. 3,6**

Pathophysiology, evaluation, diagnosis, and management of patients needing vascular surgery; participation of procedures for this population. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9525 Colorectal Surgery Cr. 3,6**

Students will learn about common colon and rectal ailments and surgical procedures in both inpatient and outpatient settings. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9528 Maxillofacial Surgery Cr. 6**

In-depth exposure to the field of maxillofacial surgery and its subspecialties of trauma, oncology, and micro-vascular reconstruction. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9530 General Urology Cr. 3,6**

Pathophysiology, evaluation, diagnosis and management of patients with urologic disease; participation in urologic surgery. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 18 Credits**

**MD4 9540 Male Reproductive Medicine Cr. 3,6**

Understanding of the basic physiology of sperm production and photophysiology that lead to infertility and sexual dysfunction. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9545 Step 2 Preparation Cr. 1**

Students will be introduced to methods for successfully passing the mandatory Step 2 CK United States Licensing Examination (USMLE). Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9600 Residency Preparation - Nonsurgical Cr. 6**

This one month elective course will prepare Senior Medical Students to enter residency training with a superior degree of skill. The sessions will be organized into 2 phases--those topics applicable to all specialties and those specific to specialties. Lecture, online exercises, small group discussions and simulation will be used as instructional modalities. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**MD4 9610 Teaching and Learning in Medical Education (TLMed) Cr. 2**

Educational skills are increasingly recognized as essential components of the education of future physicians, particularly in residency training when learners take on new teaching responsibilities for their teams. MD4 8393 provides students with the skills, strategies, and techniques to instruct medical students in classroom and clinical contexts. This course integrates a full range of educational experiences, including teaching placements, live virtual workshops, self-paced online learning modules, instructional design projects, and a final capstone project to develop M4 students into skillful teachers. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 8 Credits**

**MD4 9620 Clinical Reasoning Using Integrated Skills in Education (CRUISE) Cr. 2**

CRUISE is a year-long longitudinal course completes the four-year Highways to Excellence curriculum. WSU senior students will advance skills in areas common to all specialties while applying clinical reasoning to online assignments, in-person workshops, and asynchronous content. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Med Fourth Year.

**Repeatable for 8 Credits**

## MDR - Medical Research

**MDR 7100 Clinical Research Design Cr. 2**

Design and implementation of authorized clinical research projects, with exposure to such topics as drug discovery, study design, obtaining FDA approval, subject recruitment and retention, data management, translational and biotechnological aspects, GCRC, and bioinformatics; preparation for establishment of career in clinical and translational research. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the MD & PHD program; enrollment is limited to Graduate level students; enrollment limited to students in the School of Medicine.

**MDR 7110 Clinical Field Experience Cr. 2**

Complexity of the disease process from initial presentation of patient in a clinic, to understanding the pathophysiological basis of the disease, to diagnosis, treatment, and patient management; application of clinical and laboratory research training and current technology. Topics may include: diabetes, sickle cell anemia, asthma, seizures, hypertension, congestive heart failure, chronic myeloid leukemia, genetics of cancer, stroke, lupus. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the MD & PHD program; enrollment is limited to Graduate level students; enrollment limited to students in the School of Medicine.

**Repeatable for 2 Credits**

**MDR 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major in Medical Research; enrollment is limited to Graduate level students; enrollment limited to students in a MS in Medical Research degree.

**Repeatable for 8 Credits**

## ME - Mechanical Engineering

**ME 2200 Thermodynamics Cr. 3**

Transformation of heat energy to other energy forms. Basic concepts and laws of thermodynamics. Thermodynamic properties and processes for simple substances. Applications to power and refrigeration cycles. No credit after ME 2210. Offered Every Term.

**Prerequisites:** MAT 2020 with a minimum grade of C-, PHY 2175 with a minimum grade of C-, and BE 1500 with a minimum grade of C-

**ME 2410 Statics Cr. 3**

Basic concepts and principles of statics with applications to Newton's Laws of Motion to engineering problems. Forces, moments, equilibrium, couples, free body diagrams, trusses, frames, fluid statics, friction, area and mass moment of inertia. Offered Every Term.

**Prerequisites:** MAT 2020 with a minimum grade of C-, PHY 2175 with a minimum grade of C-, and BE 1500 with a minimum grade of C-

**Equivalent:** CE 2410

**ME 2420 Elementary Mechanics of Materials Cr. 3**

Elastic relationships between external forces acting on deformable bodies and the associated stresses and deformations; structural members subjected to axial load, torsion, and bending; column buckling; combined stresses; repeated loads; unsymmetrical bending. Offered Every Term.

**Prerequisites:** ME 2410 with a minimum grade of C- or CE 2410 with a minimum grade of C-

**Equivalent:** CE 2420

**ME 2500 Numerical Methods Using MATLAB Cr. 2**

Developing numerical solutions for engineering problems using MATLAB. Evaluation of alternative approaches to the numerical solutions in terms of accuracy and efficiency. Offered Every Term.

**Prerequisites:** BE 1500 with a minimum grade of C- and MAT 2150 with a minimum grade of C- (may be taken concurrently)

**ME 3300 Fluid Mechanics: Theory and Laboratory Cr. 4**

Introduction to the nature and physical properties of fluids, statics, equation of motion, incompressible inviscid flow, dimensional analysis, incompressible one-dimensional compressible channel flow. Experiments to supplement lectures. Offered Fall, Winter.

**Prerequisites:** BE 1500 with a minimum grade of C- and ME 2410 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**ME 3400 Dynamics Cr. 3**

Basic concepts and principles of dynamics with application of Newton's Laws of Motion to engineering problems. Kinematics and kinetics of particles and rigid and variable-mass bodies. Equations of motion, impulse-momentum, impact and work-energy principles. Offered Every Term.

**Prerequisites:** BE 1500 with a minimum grade of C-, ME 2410 with a minimum grade of C-, and MAT 2150 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**ME 3450 Manufacturing Processes I Cr. 3**

A study of the field of manufacturing processes from a mechanical engineering design standpoint. Topics include: processing of metals, polymers and ceramics, and computer-aided manufacturing. Offered Fall, Winter.

**Prerequisites:** BE 1500 with a minimum grade of C-, ME 2420 with a minimum grade of C-, BE 1300 with a minimum grade of C-, and BE 1310 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**Fees:** \$25

**Equivalent:** IE 3450

**ME 4150 Design of Machine Elements Cr. 4**

Static body stresses, strain and deflection, failure theories, introduction to impact loading and fatigue. Design of common mechanical elements: threaded fasteners, rivets, welding and bonding, springs, lubrication and sliding bearings, rolling element bearings. Offered Every Term.

**Prerequisites:** ME 2500 with a minimum grade of C- and ME 3450 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**Fees:** \$40

**ME 4210 Heat Transfer: Theory and Laboratory Cr. 4**

Fundamental concepts and basic modes of heat transfer. General equation of heat conduction, steady state heat conduction on one and more dimensions. Transient heat conduction. Heat transfer by radiation, Kirchhoff's law and the black body. Radiation between diffuse surfaces. Radiation from gases, vapors and flames. Introduction to heat convection; concept of heat transfer coefficient and Nusselt number. Lab experiments to supplement lectures. Offered Every Term.

**Prerequisites:** ME 3300 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**Fees:** \$25

**ME 4300 Thermal Fluid Systems Design Cr. 4**

Design of thermal-fluid systems to meet system performance requirements, computer-aided design, system simulation, design optimization including investment economics. Offered Fall, Winter.

**Prerequisites:** ME 2500 with a minimum grade of C-, ME 4210 with a minimum grade of C-, and ENG 3060 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment limited to students in the College of Engineering.

**Fees:** \$40

**ME 4410 Vibrations: Theory and Laboratory Cr. 4**

Fundamentals of dynamic principles, energy relation and Rayleigh's principle. Undamped and damped free vibration of one degree of freedom systems. Forced vibrations with harmonic excitation. Vibration isolation, critical speed of shafting. Experiments to supplement theory. Offered Every Term.

**Prerequisites:** ME 3400 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**Fees:** \$25

**ME 4420 Dynamic Modeling and Control of Engineering System Cr. 4**

Mathematical modeling of linear, lumped, time-invariant systems, open and closed loop systems, single-input-single-output system design using root locus method. Offered Fall, Winter.

**Prerequisite:** ME 3400 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering; enrollment is limited to Undergraduate level students.

**ME 4500 Mechanical Engineering Design II Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Involve teamwork on semester-long open-ended design project. Develop design concepts based on various design theories, analyze alternative solutions and identify "best design solution" within given constraints. Students perform patent literature search, design, fabricate, develop and test prototypes. Perform product verification and validation. Require submission of formal progress reports, a final written report and a public presentation. Course satisfies Writing Intensive course requirement. Offered Every Term.

**Prerequisites:** ME 4150 with a minimum grade of C-, ME 4410 with a minimum grade of C- (may be taken concurrently), ENG 3060 with a minimum grade of C-, and (ECE 3300 with a minimum grade of C- (may be taken concurrently) or ECE 3320 with a minimum grade of C- (may be taken concurrently))

**Restriction(s):** Enrollment limited to students in the following programs: BS in Biomedical Engineering, BS in Chemical Engineering, BS in Civil Engineering, BS in Electrical Engineering, BS in Electrical and Comp Engg, BS in Industrial Engineering, BS in Mechanical Engineering.

**Fees:** \$50

**ME 5000 Engineering Analysis I Cr. 4**

Applications of ordinary differential equations. The method of Frobenius, Bessel functions, Legendre polynomials. Orthogonality of characteristic functions. Fourier series and Fourier integrals. Characteristics and solutions of partial differential equations. Method of separation or variations. Applications to initial and boundary value problems in engineering. Offered Fall.

**Fees:** \$5

**ME 5040 Finite Element Methods I Cr. 4**

Introduce finite element methods and review solid mechanics concepts and formalisms, variational methods and potential energy principles. Emphasize the basic understanding of the finite element method including its physical and mathematical principles, numerical procedures and their implementation. Define displacement-based formulations of spring, bar, beam, plane strain and plane stress elements along with isoparametric element formulation, assembly of elements and solution of global stiffness equations. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**ME 5100 Quantitative Physiology Cr. 4**

Basic principles of human physiology presented from the engineering perspective. Bodily functions, their regulation and control discussed in quantitative terms and illustrated by mathematical models where feasible. Offered Fall, Winter.

**Equivalent:** BME 5010, CHE 5100, ECE 5100

**ME 5110 Fundamental Fuel Cell Systems Cr. 4**

Introduce various types of fuel cells, materials properties of electrodes and polymeric membranes, and electrochemical mechanisms. Reforming of various types of hydrocarbon fuel to hydrogen, and reforming technology. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** EVE 5130

**ME 5115 Fundamentals of Electric-drive Vehicle Modeling Cr. 4**

Covers engineering and modeling fundamentals and basic design of electric-drive vehicle powertrains by understanding and analyzing the relevant multi-physics and applying the associated equations and simple models. MATLAB script m-file is required for all assignments. Offered Fall.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to Graduate or Undergraduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** EVE 5115

**ME 5160 Musculoskeletal Biomechanics Cr. 4**

Structure and properties of the major tissue components of the musculoskeletal system and evaluation of how tissues combine to provide support and motion to the body. Offered Fall.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Equivalent:** BME 5210

**ME 5180 Introduction to Biomaterials Cr. 4**

Introduction to study of both biological materials (bone, muscle, etc.) and materials for medical applications. Topics include tissue properties and effects of pathology, biocompatibility, and design considerations. Offered Winter.

**Prerequisites:** BME 5010 with a minimum grade of C- (may be taken concurrently)

**Equivalent:** BME 5370

**ME 5215 Fundamentals of Battery Systems for Electric and Hybrid Vehicles Cr. 4**

Fundamental electrochemistry and engineering aspects for electric propulsion batteries, including lead acid, nickel metal hydride, and lithium ion technologies. Offered Intermittently.

**Equivalent:** AET 5310, CHE 5120, EVE 5120

**ME 5300 Intermediate Fluid Mechanics Cr. 4**

Introduce fluid kinematics entailing vector field, potential flows, vorticity along with the computation of particle trajectory in a given velocity field and near stagnation points. Define basics of fluid dynamics including stress tensor in fluids, Navier-Stokes equations, Euler's equations, properties of solutions of Euler's equations, Bernoulli's integral and role of viscosity. Extend the analysis to two-dimensional potential flows and vortex flows. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 5330 Advanced Thermal Fluid System Design Cr. 4**

Involve teamwork on semester-long open-ended design project of thermal fluid systems to meet performance requirements using sound design process and system engineering approach. Apply engineering principles and computational design software to analyze and optimize system or subsystem processes. Offered Fall, Winter.

**Prerequisites:** ME 2500 with a minimum grade of C-, ME 4210 with a minimum grade of C-, and ENG 3060 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Fees:** \$40

**ME 5400 Dynamics II Cr. 4**

Cover three-dimensional kinematics and kinetics of rigid bodies, Euler angles, angular momentum, D'Alembert Principle, equations of motion in general rotating coordinate frames. Derive Lagrange's equation of motion for particles and rigid bodies. Introduce Lagrange multipliers, holonomic and non-holonomic constraints, virtual work principle, and Hamilton's Principle. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Fees:** \$10

**ME 5440 Industrial Noise Control Cr. 4**

Basic and advanced measurement techniques to acquire various acoustic quantities in a non-ideal environment including measurements of pressure, power and intensity of sound levels, reverberation time, absorption, coefficients of materials, room acoustics, and modal analysis. Cover noise reduction and control strategies for engineering applications. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**ME 5453 Product and Manufacturing Systems and Processes Cr. 4**

Introduce principles and methodologies for critical product design within the context of vehicle development. Various tools and processes will be introduced and integrated to develop technical skills required for lean product and manufacturing development principles. Cover operation management, quality management, principles of system development, planning and analysis of product development and manufacturing systems, and honing processes of sheet metal parts. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**ME 5460 Fundamentals in Acoustics and Noise Control Cr. 4**

Introduce principles of sound generation, propagation and interaction with solid boundary surfaces, as well as engineering noise control applications. Gain hands-on experience on simulating sound radiation and interactions with solid boundaries, and estimating sound transmission through partitions. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 5465 Lasers for Medical Applications Cr. 3**

Summarizes the wealth of recent research on the principles, technologies and application of lasers in diagnostics, therapy and surgery. Includes an overview of optics, optical components used in a typical laser, key principles of lasers and radiation interactions with tissue. The respective types of the laser (solid state, gas, dye, and semiconductor) are reviewed to provide an understanding of the wide diversity, and therefore, the large possible choice of these devices for a specific diagnosis, treatment, or surgery. Offered Winter.

**Equivalent:** PHY 5460

**ME 5470 Creative Problem Solving in Design and Manufacturing Cr. 3**

Concepts of laws of natural development of engineering systems. Algorithm for inventive (creative) problem-solving (AIPS-85). Creative use of physical and geometrical effects in design of mechanical and manufacturing systems. Concepts of strength, stiffness, vibratory effects, reliability in mechanical design. Offered Yearly.

**Equivalent:** IE 5490, SYE 5470

**ME 5500 Advanced Engineering Design Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Involve teamwork on semester-long open-ended design project. Develop design concepts based on various design theories, analyze alternative solutions and identify "best design solution" within given constraints. Students perform patent literature search, design, fabricate, develop and test prototypes. Perform product verification and validation. Require submission of formal progress reports, a final written report and a public presentation. Course satisfies Writing Intensive course requirement. Offered Fall, Winter.

**Prerequisites:** ENG 3060 with a minimum grade of C-, ME 4150 with a minimum grade of C-, ME 4410 with a minimum grade of C- (may be taken concurrently), and (ECE 3300 with a minimum grade of C- (may be taken concurrently) or ECE 3320 with a minimum grade of C- (may be taken concurrently))

**Fees:** \$50

**ME 5580 Computer-Aided Mechanical Design Cr. 4**

Introduce aspects of constraint-based solid modeling and parametric modeling using Unigraphics, Solid Edge, I-DEAS and Pro-E. Develop intelligent solid models with application to data management and sheet metal design. Introduce computer-aided simulation and manufacturing. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**ME 5620 Fracture Mechanics in Engineering Design Cr. 4**

Introduce linear and nonlinear fracture mechanics principles and their applications to structural design. Formulate fracture parameters based on energy methods and stress-intensity factors for linear elastic fracture mechanics (LEFM), J-Integral and crack tip opening displacement (CTOD) for elastic plastic fracture mechanics (EPFM). Introduce design concepts based on failure assessment diagram and damage tolerance. Cover crack growth mechanisms, crack closure and crack retardation concepts. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 5700 Fundamentals of Mechanics Cr. 4**

Introduce Lagrangian and Hamiltonian classical mechanics. Derive thermodynamics laws from mechanics. Cover continuum kinematics and basics of tensor analysis, continuum mechanics (basic laws; thermodynamics of continuum media; classical continuum models). Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$5

**ME 5720 Mechanics of Composite Materials Cr. 4**

Develop a comprehensive understanding of analytical models of micro-mechanical and macro-mechanical behavior of composite materials. Conduct stiffness, strength, hydrothermal, laminate, viscoelastic, dynamic behavior and fracture analyses. Introduce experimental characterization procedures for mechanical behavior evaluation. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 5800 Combustion Engines Cr. 4**

Cover thermodynamics and cycle analysis of spark and compression ignition engines. Introduce combustion processes in actual systems, engine performance characteristics and engine modeling. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Fees:** \$35

**ME 5810 Combustion and Emissions Cr. 4**

Define air quality and emissions standards. Cover fundamentals of emission formation in combustion systems, wall quenching and imperfect combustion, unburned hydrocarbons, carbon monoxide, aldehydes, nitrogen oxides, species stratification in the combustion chamber, and particulates. Discuss the effects of design parameters and engine operating variables on emission formation. Introduce chemical kinetics simulation. Offered Winter.

**Prerequisite:** ME 5800 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$35

**ME 5900 National Design Competition Projects Cr. 1-4**

Offered Every Term.

**Repeatable for 998.99 Credits**

**ME 5990 Directed Study Cr. 1-4**

Student selects topics in mechanical engineering to perform research work. Offered Every Term.

**Repeatable for 4 Credits**

**ME 5992 Research Experiences for Undergraduates Cr. 1-4**

Offered for undergraduate credit only. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**



**ME 5995 Special Topics in Mechanical Engineering I Cr. 1-4**

Topics to be announced in Schedule of Classes . Offered Intermittently.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**Repeatable for 12 Credits**

**ME 6180 Biomedical Instrumentation Cr. 4**

Engineering principles of physiological measurements, signal conditioning equipment, amplifiers, recorders and transducers. Recent advances in instrumentation. Offered Winter.

**Prerequisites:** BME 5020 with a minimum grade of B- and ECE 3300 with a minimum grade of C-

**Equivalent:** BME 6480, ECE 6180

**ME 6550 Modeling and Control of Dynamic Systems Cr. 4**

Introduce state-space representation of dynamical systems, apply Lyapunov stability criteria, and examine controllability and observability of systems. Design linear state feedback controllers using pole-placement technique and formulate full- and reduced-order linear state observers such as Luenberger observer. Design linear model following controller and linear quadratic optimal controllers. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$5

**ME 6991 Internship in Industry Cr. 1-4**

Written report describing internship experience. Offered Every Term.

**Repeatable for 4 Credits**

**ME 7020 Finite Element Methods II Cr. 4**

Introduce isoparametric elements, plate and shell elements. Perform dynamic analysis of structures (explicit versus implicit methods). Formulate problems with geometric, materials, and/or contact nonlinearities. Introduce hybrid variational techniques, Cover examples dealing with solids, fluids and heat transfer by utilizing commercially available software such as HyperMesh, OptiStruct, LS/DYNA and ANSYS. Offered Winter.

**Prerequisite:** ME 5040 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 7100 Mathematical Modeling in Impact Biomechanics Cr. 4**

Review of models created for impact simulations. Regional impact simulation models. Human and dummy models subject to various restraint systems. Offered Intermittently.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BME 7100, ECE 7100, IE 7100

**ME 7160 Impact Biomechanics Cr. 4**

Biomechanical response of the body regions and the whole body to impact. Mechanisms of injury in blunt impact. Effects of restraints on injury reduction. Development of test surrogates such as dummies. Offered Fall.

**Prerequisite:** BME 5010 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**Equivalent:** BME 7160

**ME 7180 Advanced Topics in Biomaterials and Tissue Biomechanics Cr. 4**

Seminar format: advanced topics presented to the class; lectures by the instructor and by the participants based on literature reviews. Topics determined by student interest. Offered Every Other Fall.

**Prerequisite:** BME 5210 with a minimum grade of C or BME 5370 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BME 7300, MSE 7180

**ME 7260 Heat and Mass Transfer Cr. 4**

Introduce transport phenomena and rate equations. Formulate heat and mass transfer problems using lumped, differential and integral formulations. Solve these problems using the method of separation of variables, partial solutions, variation of parameters, superposition, Laplace transformation and Duhamel Integral for problems with time-dependent boundary conditions. Apply these concepts to various thermal and combustion systems. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 7290 Advanced Combustion and Emissions I Cr. 4**

Introduce thermodynamics of chemically reacting mixtures, oxidation mechanisms of hydrocarbon fuels, theories of explosions, structure of pre-mixed hydrocarbon flames, propagation of laminar premixed flames, pre-mixed turbulent flames, kinetics of nitrogen oxides formation, combustion and emissions in spark ignition engines and control strategies. Offered Winter.

**Prerequisite:** ME 7260 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$5

**ME 7310 Computational Fluid Mechanics and Heat Transfer Cr. 4**

Understand the physics of governing equations of conservation of mass, momentum, energy, and other scalar properties in transport processes. Express the numerical aspects of the transport processes in finite volume approach and pressure-based solution algorithm. Introduce physical models of turbulence, multi-phase and reacting flows. Acquire hands-on experience of formulation, meshing, simulation, post-processing and presentation to solve engineering problems. Stress the importance of CFD encountered in real-life engineering applications. Offered Fall.

**Prerequisite:** ME 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 7315 Electric-drive Vehicle Simulation and Control Cr. 4**

Cover modeling, simulation and control of electric-drive vehicle powertrain including plant modeling, controls model development, and in-the-loop controls testing. Proficiency in MATLAB/Simulink is required. Offered Winter.

**Prerequisites:** EVE 5115 with a minimum grade of B- or ME 5115 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Equivalent:** EVE 7310

**ME 7400 Advanced Dynamics Cr. 4**

Introduce physical concepts and formalisms of Newtonian, Lagrangian, and Hamiltonian mechanics. Formulate calculus of variations including Hamiltonian least action principle and Euler-Lagrange equation. Develop the boundary-value problem of continuous elastic structures using Hamilton's principle. Model strongly nonlinear dynamical systems involving impact, non-smooth and discontinuous loads. Offered Winter.

**Prerequisite:** ME 5400 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$5

**ME 7440 Signal Processing Technologies and Their Applications Cr. 4**

Develop advanced signal processing techniques for analyzing transient signals containing discontinuities and sharp spikes with applications to such fields as blind sources separation, de-noising time-domain signals, etc. Acquire hands-on experience with software such as LabVIEW to set up experiments and analyze data. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 7451 Advanced Manufacturing II: Material Forming Cr. 4**

Cover classical theory of plasticity and basic equations, deformation behavior and constitutive equations of materials, deformation mechanisms related to microstructures, mechanical analyses of various forming processes, experimental study on material properties, microstructure evolution and forming mechanics. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 7460 Advanced Acoustics and Noise Control Cr. 4**

Introduce advanced techniques in near-field acoustical holography for visualizing acoustic fields, analyzing vibro-acoustic correlations and identifying the critical vibration components responsible for acoustic radiation from a vibrating structure. Offered Every Other Winter.

**Prerequisite:** ME 5460 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 7480 Nonlinear Vibration Cr. 4**

Categorize nonlinearities in mechanical systems and qualitatively describe their effects on the dynamic response. Introduce the concepts of phase portrait, limit cycles, dynamic characteristics of Duffing and Van der Pol oscillators, parametric vibration and parametric resonance. Outline nonlinear techniques such as harmonic balance, averaging method, and multiple scales methods to analyze nonlinear modal interaction (internal resonance), vibro-impact dynamics and chaotic motion. Offered Fall.

**Prerequisite:** ME 5400 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 7550 Control of Dynamic Systems Cr. 4**

Formulate static optimization problems with equality constraints, system identification, parameter optimization using Lyapunov's method. Introduce calculus of variations including dynamic optimization with equality constraints and apply them to formulate linear regulator and tracking problems. Introduce Pontryagin's minimum principle and state inequality constraints. Solve minimum-time problems and minimum control-effort problems. Offered Winter.

**Prerequisite:** ME 6550 with a minimum grade of B- or ECE 5470 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**Fees:** \$5

**ME 7590 Nonlinear Control Systems Cr. 4**

Provide examples of nonlinear dynamical control systems, perform system analysis using phase-portrait, and examine stability using Lyapunov's direct method and invariant set theorems (local and global stability). Introduce describing function method, feedback linearization technique, internal dynamics, and zero-dynamics. Design nonlinear robust controllers. Offered Fall.

**Prerequisite:** ME 6550 with a minimum grade of B- or ECE 5470 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 7680 Manufacturing Processing Mechanics Cr. 4**

Perform finite element analysis (FEA) of non-linear large strain deformation problems using the software ABAQUS. Cover thermal-mechanical coupled deformation problems involving micro-manufacturing of micro-electronic mechanical systems (MEMS), electronic packaging, composite curing, creep-fatigue of micro-system and large plastic deformation in metal forming. Offered Yearly.

**Prerequisite:** ME 5040 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 7720 Advanced Mechanics of Composite Materials Cr. 4**

Conduct a review on tensor notation with application to stress strain and constitutive equations. Develop damage tolerance analysis and approaches including durability of composite materials and structures. Conduct extensive literature review and independent focused research on the above topics that encompass advanced models and their applications. Offered Winter.

**Prerequisite:** ME 5720 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 7820 Engineering Non-Destructive Evaluation (NDE) Methods and Industrial Applications Cr. 4**

Cover basic and advanced non-destructive evaluation methods used in industry. Treat in-depth the physics and engineering NDE applications of ultrasonics, vibration, acoustic emission and thermal wave sciences. Cover methodologies of penetrant and eddy current diagnostics. Illustrate NDE concepts through laboratory experiments. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**ME 7990 Directed Study Cr. 1-4**

Advanced study and instruction in mechanical engineering. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ME 7995 Special Topics in Mechanical Engineering II Cr. 1-8**

Special subject matter in mechanical engineering. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ME 7996 Research Cr. 1-4**

Perform experimental and analytic study on a selected topic in mechanical engineering. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ME 8020 Crashworthiness and Occupant Protection in Transportation Systems I Cr. 4**

Introduce crashworthiness and occupant safety facts along with computational environment influences. Review of federal motor vehicle safety regulations. Design strategies for crash load sustainment and disbursement. Review the plasticity theory and its application to modeling and design. Define strategic material selection for crash affected and related regions. Cover modeling, analysis and simulation techniques in restraint systems, energy management, and various barrier crash tests. Offered Fall, Winter.

**Prerequisite:** ME 5040 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 8030 Crashworthiness and Occupant Protection in Transportation Systems II Cr. 4**

Develop mathematical models of vehicle crashes in front, side, rear, and rollover modes. Cover roles of vehicle structures and restraint systems in reducing risk of injury. Offered Winter.

**Prerequisite:** ME 8020 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 8290 Advanced Combustion and Emissions II Cr. 4**

Introduce single-component and multi-component droplet evaporation and combustion processes, liquid fuel sprays formation, evaporation and combustible mixture formation, comparison between autoignition of homogeneous and heterogeneous mixtures, diffusion flames, combustion of liquid sprays in compression ignition engines and emission control strategies along with advances in gasoline compression ignition engines. Offered Winter.

**Prerequisite:** ME 7260 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**ME 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ME 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ME 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ME 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ME 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**ME 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## MED - Music Education

**MED 2500 Piano Skills for the Music Classroom Cr. 2**

Continuation of MUA 2795. Additional practice with functional skills needed in music classroom. Students acquire a repertoire of musical selections commonly used in the educational setting. Offered Winter.

**Prerequisite:** MUA 2795 with a minimum grade of C

**Fees:** \$75

**MED 3500 Introduction to Music Education Cr. 2**

Course work includes lesson-plan writing, introduction to methodologies, and participating in teaching experiences. Exploration of philosophical, historical, psychological, and cultural/social foundations of the profession in the context of practical exercises. Offered Fall.

**MED 3510 Teaching General Music Cr. 2**

Developing a knowledge base for teaching general music including application of learning theories, developmental characteristics of children, and appropriate literature, materials, and resources. Emphasis on structuring successful learning experiences through effective planning, delivery, and evaluation of music instruction for students in grades K-12. Offered Winter.

**Prerequisite:** MED 3500 with a minimum grade of C

**MED 3990 Directed Study Cr. 1-3**

Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Junior, Senior or Post Bachelor; enrollment is limited to students with a major in Music or Music Honors.

**Repeatable for 6 Credits**

**MED 4510 Vocal Music in Schools I Cr. 3**

Course expands and develops the knowledge base and teaching competencies introduced in MED 3510. Class activities explore strategies for engaging children in a variety of musical experiences that align with state and national standards. Fieldwork in the schools provides an opportunity to apply and refine specific teaching skills within a real-world setting. Emphasis on K-6 elementary music classroom. Offered Fall.

**Prerequisite:** MED 3500 with a minimum grade of C

**MED 4530 Vocal Music in Schools II Cr. 3**

Role of choral and vocal music education in secondary schools. Class activities, readings, and fieldwork focus on curriculum development, repertoire, score analysis, rehearsal planning, rehearsal techniques, vocal pedagogy and assessment. Organizational and managerial aspects such as recruitment, budgeting and scheduling are also included. Offered Winter.

**Prerequisite:** MED 4510 with a minimum grade of C

**MED 4540 Instrumental Music in the Schools I Cr. 3**

Teaching techniques, materials and organization of instrumental music in elementary schools. Offered Fall.

**Prerequisite:** MUA 1720 with a minimum grade of C and MUA 1730 with a minimum grade of C and MUA 1740 with a minimum grade of C and MUA 1750 with a minimum grade of C and MUA 1760 with a minimum grade of C and MED 3500 with a minimum grade of C

**MED 4550 Instrumental Music in the Schools II Cr. 3**

Teaching techniques, materials and organization of instrumental music in secondary schools. Offered Winter.

**Prerequisite:** MED 4540 with a minimum grade of C

**MED 4560 Practicum in Music Education Cr. 2**

Practicum provides field experiences in elementary or secondary school settings prior to full-time student teaching. Students apprentice with a cooperating teacher while assisting, observing and teaching throughout the semester. A minimum of 15 hours per week in an approved classroom is required. Offered Fall, Winter.

**Prerequisite:** MED 3500 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the College of Education.

**MED 4570 Student Teaching and Seminar Cr. 8**

Directed teaching in schools at grade levels for which advanced students are preparing for certification. Seminars feature discussion of important educational issues. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**MED 5550 Choral Conducting and Rehearsal Techniques Cr. 3**

Conducting and rehearsal methods and materials for secondary schools. No credit for M.Mus. in conducting or music education. Offered Winter.

**Prerequisite:** MUA 3670 with a minimum grade of C

**MED 5590 Applications of Technology in Music Teaching Cr. 2**

Presentation of techniques and strategies for utilizing various hardware and software applications in classroom music instruction. Emphasis on evolving technologies, including collaborative media, smart technology, and interactive smartboard class materials. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Music.

**Fees:** \$75

**MED 7990 Directed Study in Music Education Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**MED 7999 Master's Essay Direction Cr. 3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**MED 8999 Master's Thesis Direction Cr. 1-8**

Preparation of M.M. thesis project in music education. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Master of Music program; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Music degree.

**Repeatable for 8 Credits**

## MGG - Molecular Genetics and Genomics

**MGG 6010 Molecular Biology and Genetics Cr. 4**

Covers the basic aspects of molecular genetics. Students should have completed previous coursework in organic chemistry, introductory biology, and biochemistry or cell and molecular biology. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MGG 7010 Molecular Biology and Genetics Cr. 4**

Basic aspects of molecular genetics. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7015 Introduction to Genetics Cr. 2**

Forges a link between genotype and phenotype and covers topics in contemporary genetics, including Mendelian analysis, chromosomes, mitosis/meiosis, recombination, mutations and mutagenesis, linkage mapping, complementation, extranuclear inheritance, genetic interactions and epistasis, epigenetics, and developmental genetics. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7020 Metabolism and Disease Cr. 2**

This course will review normal metabolic pathways and their regulation and then discuss in depth aberrant metabolism as it contributes to or causes diseases such as diabetes, cancer, and neurodegeneration. Didactic lectures will be complemented with student-based presentations of classic and current primary literature studies. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PSL 7220

**MGG 7030 Functional Genomics and Systems Biology Cr. 2**

Exploration of several new technologies for determining gene function on a genome-wide scale and for integrating information into a systems-level view of biological processes. Offered Winter.

**Prerequisite:** IBS 7015 with a minimum grade of C or MGG 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** IBS 7030

**MGG 7040 Molecular Organelle Physiology Cr. 2**

Consists of lectures covering the fundamental topics of eukaryotic cell biology, with a focus on the cellular and molecular mechanisms that underlie organelle activities and their relevance in human physiology, metabolism and diseases. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7050 Bioinformatics: theory and practice Cr. 3**

This course will teach graduate students in the biological sciences how to use public web-based bioinformatics resources to analyze the structure and function of protein-coding and noncoding-RNA genes. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7091 Scientific Communication Cr. 2**

Advanced technical and grant-writing techniques related to the unique requirements in NIH grant proposals. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7400 Molecular Biology of Cellular Signalling Cr. 2**

Molecular basis of cell-cell interactions, hormonal interactions, and interactions between different cellular compartments. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7460 Research Training in Molecular Biology and Genetics Cr. 1-8**

Direct participation in laboratory research under the supervision of faculty advisor. Design and execution of experiments; analysis of laboratory data; interpretation of results and their relation to published findings. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 24 Credits**

**MGG 7600 Advanced Human Genetics Cr. 3**

Concepts, problems, and methods of human genetics at an advanced level. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7640 Principles of Genetic Counseling Cr. 4**

History and evolution of genetic counseling and how it relates to clinical genetic services within the health care delivery system. Genetic counseling skills such as case preparation, interviewing techniques, and family history assessment; counseling methods. Offered Fall.

**Restriction(s):** Enrollment limited to students in the MS in Genetic Counseling program; enrollment is limited to Graduate level students.

**MGG 7660 Practical Applications of Genetic Counseling Cr. 3**

Provides the foundation for identifying and applying the practical aspects of genetic counseling, including genetic testing and billing and reimbursement, to the reproductive, cardiovascular, pediatric, neurogenetic and cancer genetics clinical settings. Offered Winter.

**Prerequisite:** MGG 7640 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7710 Introduction to Medical Genetics Cr. 2**

The principles of genetics and genomics related to medical genetics and how it is integrated into clinical practice. Offered Winter.

**Prerequisite:** MGG 7010 with a minimum grade of C or IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Genetic Counseling.

**MGG 7730 Introduction to Promoting Health Equity in Genetic Counseling Cr. 1**

This course aims to introduce learners to how diversity influences access to, the experience with, and utilization of health care, leading to health disparities in under-represented people and what they can do as future genetic counselors to provide inclusive practice and promote health equity. Through didactic instruction, readings, video reviews, discussions, self-assessments, and self-reflection, led by faculty from diverse backgrounds, students will: define diversity, equity, inclusion, justice and related terms; recognize a broad array of aspects of diversity and the role of intersectionality in any individual's lived experiences; describe and recognize one's own implicit and explicit biases; identify microaggressions, their impact and strategies for addressing them; and start to develop one's own plan for promoting health equity in genetic counseling. Offered Fall.

**Restriction(s):** Enrollment limited to students in the MS in Genetic Counseling program; enrollment is limited to Graduate level students.



**MGG 7740 Theory and Practice of Genetic Counseling Cr. 3**

Major theories of human behavior and application of these theories to the practice of genetic counseling. Development of interpersonal communication and psychosocial assessment skills. Offered Winter.

**Prerequisite:** MGG 7640 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7741 Advanced Genetic Counseling Theory and Practice Cr. 3**

Cultural, social, ethical, legal, professional and health-related issues that influence delivery of genetic counseling service and patient decision-making. Application of knowledge to practice. Offered Fall.

**Prerequisite:** MGG 7740 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7800 Advanced Medical Genetics Cr. 3**

Overview of medical genetic disorders taught at a level suitable for those preparing for certification examinations in clinical genetics specialties or for those whose research focus or clinical practice will have a strong emphasis in medical genetics. Offered Fall.

**Prerequisite:** MGG 7600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7830 Human Development and Teratology Seminar Cr. 1**

Through lecture, self-study, exam, and oral presentation, students learn key aspects of fetal development, the embryological basis of birth defects and genetic dysmorphology syndromes, clinical teratology, and the associated medical terminology. Offered Fall.

**Restriction(s):** Enrollment limited to students in the MS in Genetic Counseling program; enrollment is limited to Graduate level students.

**MGG 7860 Evaluating the Health Care Literature Cr. 1**

Reading and analysis of health care literature with focus on research articles. Principles of health research design and analysis; skills for critical assessment of medical literature. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Genetic Counseling; enrollment is limited to Graduate level students.

**MGG 7880 Genetic Counseling Seminar Cr. 1-6**

Discussion format; issues relevant to medical genetics and the genetic counseling process. Presentations by students and invited faculty. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the MS in Genetic Counseling program; enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**MGG 7881 Senior Seminar in Genetic Counseling Cr. 2**

Preparation for the transition to from student to practicing professional in the areas of the job search, billing and reimbursement, clinical supervision, developing effective educational programs, advocacy, and other relevant areas. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 7998 Master's Essay in Molecular Genetics and Genomics Cr. 3**

Students will write a scholarly document (essay) based upon a topic of ongoing research in genetics or genomics. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major in Molecular Genetics & Genomics.

**MGG 7999 Master's Research Project and Direction Cr. 1-5**

Student conducts hypothesis-driven research and prepares written manuscript and oral presentation. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Genetic Counseling; enrollment is limited to Graduate level students; enrollment limited to students in a MS in Genetic Counseling degree.

**Repeatable for 5 Credits**

**MGG 8010 Quantitative Data Analysis for Biological and Medical Sciences Cr. 2**

Covers several of the statistical concepts and data analytic skills needed to succeed in data-driven life science research, beginning with relatively basic concepts related to computing p-values and advancing to topics related to analyzing high-throughput data. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 8680 Advanced Topics in Molecular Genetics and Genomics Cr. 1-3**

Offers an in-depth study of concepts and research in specific fields. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MGG 8770 Molecular Biology of Mitochondrial Disease Cr. 2**

Mitochondrial structure and function; mitochondria as sites of phenomena such as cell death, generation of free radicals, and production of most cellular energy. Traditional mitochondrial diseases (e.g., caused by mutations in the mitochondrial DNA); more recent findings of involvement of mitochondria in pathologies such as cancer, diabetes, aging, and neurodegenerative diseases. Offered Fall.

**Prerequisite:** IBS 7015 with a minimum grade of C or MGG 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 8998 Genetic Counseling Internship Cr. 1-8**

Students work in variety of genetics and subspecialty clinics as well as laboratory settings, under supervision of genetic counselor/geneticist. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Genetic Counseling; enrollment is limited to Graduate level students; enrollment limited to students in a MS in Genetic Counseling degree.

**Repeatable for 8 Credits**

**MGG 8999 Master's Thesis Research and Direction Cr. 1-8**

Student conducts research and prepares written presentation, designed to test specific hypothesis dealing with method, concept, or data. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to students with a major, minor, or concentration in Molecular Biology and Genetics; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Science degree.

**Repeatable for 8 Credits**

**MGG 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MGG 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MBG 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MBG 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MBG 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGG 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## MGT - Management

**MGT 2530 Management of Organizational Behavior Cr. 3**

Applied issues in management examined through a focus on the organization and its external environment, group functions and processes, and employee attitudes and behaviors. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**MGT 4500 Business Co-op Assignment Cr. 0**

Must be elected by Professional Development Co-operative Program students during work semester. Offered for S and U grades only. No credit toward degree. Opportunity to put theory into practice on the job. Students will normally be assigned to cooperating business organizations for internship periods of one semester. Offered Every Term.

**Equivalent:** ACC 4500, FIN 4500, MKT 4500

**MGT 4990 Directed Study in Management Cr. 1-3**

Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member. Offered Every Term.

**Prerequisites:** MGT 5510 with a minimum grade of D- and MGT 5530 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**MGT 4991 Study Abroad Cr. 3**

Study abroad programs in various countries. Programs run 10-15 days in length. Recent country programs have been in China; Netherlands, Germany, Poland; Italy and Canada. Travel within a given country with visits to various companies and cultural attractions. Traveling costs are over and above tuition and vary by country. Various reading and assignments required. Offered Winter, Spring/Summer.

**Equivalent:** GSC 4991, MKT 4991

**Repeatable for 6 Credits**

**MGT 5100 Introduction to Sport & Entertainment Management Cr. 3**

Provides an overview of the sport & entertainment industry, and examines issues encountered by sport and entertainment managers with special emphasis on the use of business principles to identify, attract and retain consumers. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** SEM 5100

**MGT 5510 Managing Organizational Structure and Processes Cr. 3**

Analysis of strategic pressures on the organization. Application of advanced concepts of structured organizational change to contemporary organizational design problems. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** MGT 2530 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5530 Advanced Organizational Behavior Cr. 3**

Analysis and application of advanced organizational behavior concepts relevant to managing in a complex and changing environment. Topics include: leading and managing organizational change; solving workplace problems creatively; communicating effectively in a diverse work environment; building and empowering effective teams. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** MGT 2530 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5550 Special Topics in Management Cr. 3**

This course covers critical management topics relevant to today's current and aspiring managers and leaders. Offered Intermittently.

**Prerequisite:** MGT 2530 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**MGT 5560 Building Leadership Competencies Cr. 3**

The course is designed to provide an understanding of how and why effective leaders do what they do. The instructor will integrate theory, practice, scientific evidence, hands-on experience, and personal reflections to help students achieve the following goals: 1) gain awareness of personal attributes and a unique style of leadership, 2) understand what effective leadership is and how to build a leadership skillset, and 3) identify leadership solutions to real-world challenges in organizations. Offered Yearly.

**Prerequisite:** MGT 2530 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5650 The Entrepreneur and Venture Creation Cr. 3**

Nature of entrepreneurship and the role of the entrepreneur in society. Focus on the critical factors and special problems associated with the process of creating new business ventures. Emphasis on development of a business plan. Offered for undergraduate credit only. No credit after EI 5000. Offered Yearly.

**Prerequisites:** ACC 3010 with a minimum grade of C, FIN 3290 with a minimum grade of D-, MGT 2530 with a minimum grade of D-, and MKT 2300 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5700 Human Resource Management Cr. 3**

Theory, policies, procedures and practices in employment relationships. Topics: strategic HRM, legal environment of HRM, equal employment opportunity, job analysis and design, employment planning, recruitment, selection, training and development, performance appraisal, compensation and benefits, labor relations, health and safety. Managerial and policy implications; linkages between HRM practices and organizational effectiveness. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** MGT 2530 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5730 Introduction to People Analytics Cr. 3**

Most people-related decisions in organizations are based on intuition and experience rather than on employee data. In this course, students will gain an understanding of the types of people-related decisions that can be addressed using people analytics in an organizational setting. Students will develop critical thinking skills to draw meaningful conclusions across a range of HR contexts. Students will also utilize software to apply basic statistics concepts and principles to people-related data. Offered Yearly.

**Prerequisite:** MGT 5700 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5740 Employee Relations Cr. 3**

Development and maintenance of employee-management relations, including employee and management rights and responsibilities, administration and creation of employment contracts and handbooks, and management of employee attitudes and behaviors. Students typically complete a collective bargaining simulation. Offered for undergraduate credit only. Offered Yearly.

**Prerequisites:** MGT 2530 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5770 Staffing and Selection Cr. 3**

This is an advanced course that covers the Human Resource Management (HRM) functions of staffing (HR planning and recruitment) and selection. These functions are responsible for bringing talent—the central source of competitive advantage—into organizations. It is assumed that students have a basic familiarity with the major concepts, functions, and activities of HRM. Recent developments in recruitment and selection will be emphasized, with a particular focus on innovative methods that align with organizational strategy and mission, metrics for assessing the effectiveness of such methods, and the legal implications and challenges posed by these methods. Offered Fall, Winter.

**Prerequisites:** MGT 5700 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5790 Internship in Management Cr. 3**

Student performs assigned tasks and responsibilities in a professional manner under supervision of host-employer for minimum 160 hours during the semester, abiding by rules and regulations established by the employer and expected of all employees; student must satisfactorily complete all course requirements outlined in the internship program for the School of Business Administration. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** MGT 2530 with a minimum grade of C and 9 credits from (BA 1000-6999 (must be taken at WSU), ACC 1000-6999 (must be taken at WSU), GSC 1000-6999 (must be taken at WSU), FIN 1000-6999 (must be taken at WSU), MGT 1000-6999 (must be taken at WSU), MKT 1000-6999 (must be taken at WSU), ISM 1000-6999 (must be taken at WSU), or BLW 2510-5190 (must be taken at WSU))

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 5900 Project Management Cr. 3**

Understanding and appreciation of the different knowledge areas of project management. Insight into developing the inputs, tools, techniques, and outputs to successfully manage products. Offered for undergraduate credit only. No credit after former ISM 5900. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C and MGT 2530 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Equivalent:** TIS 5900

**MGT 6890 Strategic Management and Business Policy Cr. 3**

Managing the firm as an integrated unit under conditions of uncertainty. Integration of concepts and skills covered in previous specialized courses. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 6995 Management Capstone: Applying Management and Leadership Principles Cr. 3**

Capstone course that focuses on 1) integrating and applying management theory and best practices to applied projects, 2) increasing students' self-awareness of their own management and leadership strengths, and 3) strengthening students' leadership and professional skill sets. Offered Every Term.

**Prerequisites:** MGT 5530 with a minimum grade of C-, MGT 5700 with a minimum grade of C-, and 6 credits from MGT 5000-9999

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MGT 7620 Complex Organizations Cr. 3**

The formal structure and processes in complex organizations: departmentalization, decentralization, authority and power, relationships between groups, organizational design and evaluation. Factors affecting organizational design, adaptation to environments, and designing effective decision-making systems. Offered Yearly.

**Prerequisites:** BA 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7630 Organizational Change and Development Cr. 3**

Analysis of the impact of dynamic forces, particularly globalization, on the theory, methods, and skills involved in designing and implementing planned changes in organizations. Offered Intermittently.

**Prerequisites:** BA 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7640 Management of Human Resources Cr. 3**

Theory, policy, research and process issues in employment relationships. The specific personnel practices of planning, selecting, employee development and appraisal, compensation and labor relations examined as they relate to conceptual and pragmatic views of management or employee behavior. Offered Every Term.

**Prerequisites:** BA 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7650 Strategic Human Resource Management Cr. 3**

Survey of human resource management from a strategic perspective. Formulation and implementation of human resource strategy addressed for recruitment, placement, training, development, issues in an international community. Offered Yearly.

**Prerequisite:** MGT 7640 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7660 Entrepreneurial Management Cr. 3**

Nature of entrepreneurship and role of entrepreneur. Focus on problematic issues involved in creating and managing a small business. Emphasis on special knowledge and skills required of an entrepreneurial manager. Individual students may act as consultants to entrepreneurs or small business owner/managers. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7700 Leadership and Management of Innovation and Technology Cr. 3**

Technology and innovation in corporations. Building on principles of leadership and management, consideration of technology, innovation, organizational effectiveness and global competition. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7730 People Analytics Cr. 3**

The goal of this course is to equip students with the knowledge and skills needed to set-up and implement a data-driven approach to improving people-related decision-making in organizations. Through this course, students will develop critical thinking skills about people analytics by applying basic statistics concepts and principles to HR-related data. Students will gain an understanding of the types of problems that can be addressed using people analytics through examples from a range of HR contexts and will use statistical software to analyze data to draw meaningful conclusions. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7750 Managing Employee Relations Cr. 3**

Development and maintenance of employee-management relations, including employee and management rights and responsibilities, administration and creation of employment contracts and handbooks, and management of employee attitudes and behaviors. Emphasis on union and management perspectives of the employment relationship. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7780 Workplace Negotiations Cr. 3**

The purpose of this course is to examine the process of negotiations. It focuses on the skills, strategies, and techniques behind effective negotiating. The course content is applicable to a broad spectrum of work- or business-related relationship challenges faced by managers and professionals. This course embraces an active experiential approach to learning in an effort to bridge the theoretical and pragmatic aspects of negotiations. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** DR 7210

**MGT 7815 Strategic Leadership Cr. 3**

Academic and practitioner views of strategic leadership to understand the dynamics of leadership influence in complex organizations. Offered Fall, Winter.

**Prerequisite:** BA 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7816 Leading Self and Others Cr. 3**

This course is designed to empower students with essential interpersonal leadership competencies through self-reflection exercises, assessments, and practical application. Students enhance their understanding of their own leadership capabilities and challenges via a personal leadership development plan that incorporates their unique self-awareness goals and strategies for continuous growth. By integrating theory with real-world experiences, students refine critical leadership competencies to lead effectively in diverse organizational contexts. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7850 Management through Constructive Persuasion Cr. 3**

Introduction to methods of persuasion. Students learn how persuasion strategies can be applied in listening, speaking and written formats for business management situations. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MGT 7895 Internship in Management Cr. 3**

Students work a minimum of 160 hours for fifteen weeks in an entry-level management position in management. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**MGT 7900 Project Management Cr. 3**

Management of resources (budget, personnel, materials, etc.) within the scope of a given project; understanding and appreciation for the different knowledge areas of project management; insight into identification of inputs, tools, and techniques of project management. No credit after TIS/ MGT 5900 or after former ISM 5900 or ISM 7900. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** TIS 7900

**MGT 7950 Business and Sustainability Cr. 3**

How organizations can be good to the environment while being profitable. Sustainability concerns such as climate change, rising energy prices, natural resource depletions, and air pollution. Evaluation of aspects of business operations including marketing and communications, stakeholder engagement, product development, operations, supply chain management, and reporting concerns. Offered Fall.

**Prerequisites:** BA 7040 with a minimum grade of C or BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** MKT 7950

**MGT 7995 Directed Study in Management Cr. 1-3**

Advanced independent readings and research under supervision of a graduate faculty member in areas of special interest to student and faculty member. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**MGT 8000 Seminar in Management Cr. 3**

Selected topics in the management and organizational sciences. Offered Intermittently.

**Prerequisite:** BA 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

## MIT - Manufacturing and Industrial Engineering Technology

**MIT 2500 Machine Tool Laboratory Cr. 1**

Laboratory experiences in manufacturing processes, machine tools, and mechanization. Calibration and part-setup. Offered Fall, Winter.

**Prerequisites:** ET 2140 with a minimum grade of C-

**MIT 3520 Manufacturing Processes Theory Cr. 3**

Fundamentals of material manufacturing processes in the context of their applications in industry. Emphasis on the nature and deformation behavior of materials commonly used in manufacturing, basic processes used in transforming them into useful products, the scientific theories underlying those processes, and criteria for selecting particular processes for industrial manufacturing operations. Offered Fall, Winter.

**Prerequisites:** CHM 1020 with a minimum grade of C-



**MIT 3600 Process Engineering Cr. 3**

Processing functions. Methods of manufacturing analysis. Manufacturing sequence, mechanization. Selection of tooling and equipment. Planning the process of manufacture. Offered Yearly.  
**Prerequisites:** MIT 3520 with a minimum grade of C-

**MIT 4700 Computer-Aided Design and Manufacturing Cr. 3**

Fundamentals of computer-aided manufacturing using computer software. Two- and three-dimensional applications programming, numerical control and programming. Offered Fall.  
**Prerequisites:** MIT 3600 with a minimum grade of C-  
**Fees:** \$25

**MIT 4800 Quality Control Cr. 4**

Introduction to total quality systems design and to basic analytical techniques for quality control. Offered Intermittently.  
**Prerequisites:** ET 3850 with a minimum grade of C-

**MIT 4990 Guided Study Cr. 1-6**

Supervised study and instruction in the field selected by the student. Offered Intermittently.  
**Repeatable for 6 Credits**

**MIT 5500 Machine Tool Laboratory Cr. 1**

Laboratory experiences in manufacturing processes, machine tools, and mechanization. Calibration and part-setup. Offered Fall, Winter.  
**Prerequisites:** ET 2140 with a minimum grade of C-

**MIT 5700 Industrial Robots Modeling and Simulation Cr. 4**

Topics include: the direct kinematic problem (homogeneous transformation matrices, composite homogeneous transformation matrix, links, joints and their parameters, the Denavit-Hartenberg representation, kinematic equations for manipulators); the inverse kinematic problem (geometric approach applied for 2DOF, 3DOF, 4DOF, 5DOF, and 6DOF manipulators; modeling, simulation and off-line programming of industrial robots and cobots (collaborative robots); and current trends and research in industrial robotics and cobotics. Offered Winter.  
**Prerequisites:** ET 3430 with a minimum grade of C-

**MIT 7700 Robotics and Flexible Manufacturing Cr. 4**

Kinematics, dynamics and controls of the manipulators, their design and applications in flexible manufacturing cells. Computer-integrated manufacturing. Offered Intermittently.  
**Prerequisite:** ET 7430 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Graduate level students.

## MKT - Marketing

**MKT 2300 Marketing Management Cr. 3**

Planning the marketing program within social, economic and legal environments, market segmentation and behavior, market systems and strategy, international marketing. Offered Every Term.  
**Prerequisites:** ECO 2010 with a minimum grade of C  
**Restriction(s):** Enrollment limited to students in the School of Business.

**MKT 4500 Business Co-op Assignment Cr. 0**

Must be elected by Professional Development Co-operative Program students during work semester. Offered for S and U grades only. No credit toward degree. Opportunity to put theory into practice on the job. Students will normally be assigned to cooperating business organizations for internship periods of one semester. Offered Every Term.  
**Equivalent:** ACC 4500, FIN 4500, MGT 4500

**MKT 4990 Directed Study in Marketing Cr. 1-3**

Advanced readings and research or tutorial under the supervision of a faculty member in areas of special interest to student and faculty member. Offered Every Term.  
**Prerequisites:** MKT 5410 with a minimum grade of C- and MKT 5450 with a minimum grade of C-  
**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.  
**Repeatable for 6 Credits**

**MKT 4991 Study Abroad Cr. 3**

Study abroad programs in various countries. Programs run 10-15 days in length. Recent country programs have been in China; Netherlands, Germany, Poland; Italy and Canada. Travel within a given country with visits to various companies and cultural attractions. Traveling costs are over and above tuition and vary by country. Various reading and assignments required. Offered Winter, Spring/Summer.  
**Equivalent:** GSC 4991, MGT 4991  
**Repeatable for 6 Credits**

**MKT 5410 Marketing Research and Analysis Cr. 3**

Methods of gathering and analyzing data which will facilitate the identification and solution of marketing problems. Planning the project, data sources for exploratory and conclusive research. Questionnaire construction, sample design, and design of marketing experiments. Offered for undergraduate credit only. Offered Fall, Winter.  
**Prerequisites:** MKT 2300 with a minimum grade of C- and BA 3400 with a minimum grade of C-  
**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5450 Consumer Behavior Cr. 3**

Concepts and theories to explain consumer and organizational buyer behavior. Application of this understanding to marketing management and public policy decision making. Offered for undergraduate credit only. Offered Fall, Winter.  
**Prerequisites:** MKT 2300 with a minimum grade of C-  
**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5460 Sales Management Cr. 3**

Organization and direction of a sales organization including selection, training, compensation, supervision, motivation, budgets, quotas, territories, and sales analysis. Offered for undergraduate credit only. Offered Every Term.  
**Prerequisites:** MKT 2300 with a minimum grade of C-  
**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5490 Principles of Advertising Cr. 3**

Introduces the basic elements of consumer advertising including the difference between marketing and advertising, how an advertising agency works, campaign strategy and planning, the creative process, foundations of media planning, and the concept of integrated marketing communications. Offered Fall, Winter.  
**Prerequisites:** MKT 2300 with a minimum grade of C-  
**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5510 Media Planning in the Digital Age Cr. 3**

This course introduces students to key elements surrounding the use of consumer facing media as part of the marketing mix. Media planning terminology and calculations for all major media platforms will be explored. On the digital side, there will be a focus specifically on display and paid search. Students will learn, understand, and apply the variables involved in developing a comprehensive, integrated, media plan. They will also learn about the role of paid, owned and earned media as part of campaign planning, with the primary focus being paid media. Offered Fall.

**Prerequisites:** MKT 5490 with a minimum grade of C- or MKT 5800 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5511 Search Engine Marketing and Optimization Cr. 3**

Examines the strategic use of search engine marketing and optimization and teaches students how to drive traffic to websites and build customer relationships. Topics include search behavior, search engines, performance indicators, crawlability, keyword research, content optimization, off-page SEO, paid search marketing, and the future of search. Offered for undergraduate credit only. Offered Intermittently.

**Prerequisites:** MKT 5800 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5512 Social Media Marketing Cr. 3**

The term digital marketing is no longer a niche area of study. Rather, digital marketing is a core tenet of marketing in today's society. Every organization, small or large, practices some form of digital marketing and requires skilled personnel who can deliver effective digital marketing strategies while being able to measure their effectiveness using a variety of analytics. Social media and content marketing are possibly the most widely practiced topics under the larger digital marketing umbrella, with businesses constantly using them to (attempt to) drive revenue and brand awareness. However, these are also the quickest to change, with new platforms and strategies emerging every year. In this course, students will examine how to utilize social media and content to grow business and the analytics used to measure their effectiveness. Offered Intermittently.

**Prerequisites:** MKT 5800 with a minimum grade of C

**MKT 5610 Marketing New Ventures Cr. 3**

Topics include: product development vs. customer development; market types; customer types; diffusion and adoption life cycle theories and concepts; market opportunity analysis and product/ market fit, estimation of market size; value proposition; positioning statement; marketing strategy and plan to launch and sustain a new venture. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MKT 5700 Retail Management Cr. 3**

Retailing concepts and problems. Competitive structure, store location, organization, buying, inventory control, sales promotion, pricing, credit policy, customer services, research and franchising. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisites:** MKT 2300 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5750 International Marketing Management Cr. 3**

Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** MKT 2300 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5800 Digital Marketing and Analytics Cr. 3**

Introduces all major aspects of digital marketing and analytics. Examines web design and analytics, search engine optimization and marketing, online advertising, email marketing, social media, and reputation management. Prepares students to improve an organization's digital marketing presence. Offered Fall, Winter.

**Prerequisites:** MKT 2300 with a minimum grade of C-

**MKT 5840 Special Topics: Search Engine Marketing and Optimization Cr. 3**

This course examines the strategic use of search engine marketing and optimization and teaches students how to drive traffic to websites and build customer relationships. Topics in the course will include searcher behavior, anatomy of the search engine, keyword research, content optimization, off-page SEO, and strategies for conducting successful search engine campaigns. By the end of the course, students will be able to derive insights and apply new skills towards improving an organization's search engine strategy. This course covers emerging research, development, and practice topics from across the field of Marketing. Topics to be announced in schedule of classes. Offered for undergraduate credit only. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5850 Integrated Marketing Communications Strategy Cr. 3**

Application of basic advertising skills to development of a fully-integrated marketing communications program for a major national or international business; research, media, creative, and promotion strategies. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** MKT 5490 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 5890 Internship in Marketing Cr. 3**

Consult School of Business Administration website for further guidelines and application form for the internship. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** MKT 2300 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 6996 Strategic Marketing Cr. 3**

Capstone course in the marketing sequence; includes four components designed to develop skills in planning and development of strategies to solve marketing problems. Offered for undergraduate credit only. Offered Every Term.

**Prerequisites:** MKT 2300 with a minimum grade of C-, MKT 5410 with a minimum grade of C-, and MKT 5450 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**MKT 7150 Global Automotive Marketing Strategy Cr. 3**

Marketing concepts, strategies, and tactics in global automotive industry. Marketing principles, role of marketing, target market selection, segmentation, brand management, distribution systems. Offered Spring/Summer.

**Prerequisites:** BA 6015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7430 Advertising Management Cr. 3**

Planning, implementing, and controlling advertising and sales promotion. Internal and external relationships of the advertising department, determining advertising objectives and copy platform, setting the budget, selecting media and measuring advertising effectiveness. Offered Fall, Winter.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7450 Business Research and Methodology Cr. 3**

An intensive study of the objectives and methodologies of research for business decisions. Course topics include: the scientific method, primary and secondary data sources, research design, reliability and validity, sampling, and applied statistics. Focus on the development of decision-oriented research information for all aspects of a business organization. Offered Fall, Winter.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7460 International Business Cr. 3**

Globalization, the multinational firm, and emerging economies. Evolution of the international monetary environment and monetary systems. Theory of the multinational firm and foreign direct investment. Cultural and market opportunity analyses. Internationalization patterns and modes of foreign market entry. Strategic and organizational choice in international business. International alliances and emerging market economies. Fundamentals of international financial management. Offered Fall.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7470 Consumer and Industrial Buying Behavior Cr. 3**

Behavioral theory as it relates to consumer and industrial decision processes. Relevant concepts, theories, and recent research findings are drawn from the fields of marketing, psychology, social psychology, and communications. Examination of consumer and industrial buying practices. Offered Fall.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7500 International Marketing Strategy Cr. 3**

Globalization and marketing in the current decade. Marketing and research in the international environment. Cross-national consumer behavior and cross-national segmentation, targeting, and positioning. Product policy and branding in the international environment. International pricing, supply chain management, and communication strategy. Global branding. Marketing problems and opportunities in emerging markets. Organizational and strategic issues in global marketing. Offered Winter.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7700 Management of Retail Enterprises Cr. 3**

In-depth study of the retail mix variables as they relate to products and services, pricing, promotion, place, and operating policies. Merchandising, inventory controls, store operations, and research approaches in monitoring current trends in retail management. Offered Fall.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7860 Social Media and Digital Marketing Analytics Cr. 3**

Students will examine some of the top social media platforms today and the analytics used to measure their effectiveness. In addition, students will learn the basics of building a digital marketing team including how to manage digital marketing employees. Offered Winter, Spring/Summer.

**Prerequisite:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7870 Seminar in Marketing Cr. 3**

In-depth exploration of new and important subjects or techniques in marketing. Topics vary by semester; consult instructor. Offered Intermittently.

**Prerequisite:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MKT 7890 Internship in Marketing Cr. 3**

Students work a minimum of 160 hours for fifteen weeks in an entry-level management position in marketing. Offered Every Term.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**MKT 7950 Business and Sustainability Cr. 3**

How organizations can be good to the environment while being profitable. Sustainability concerns such as climate change, rising energy prices, natural resource depletions, and air pollution. Evaluation of aspects of business operations including marketing and communications, stakeholder engagement, product development, operations, supply chain management, and reporting concerns. Offered Fall.

**Prerequisites:** BA 7040 with a minimum grade of C or BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** MGT 7950

**MKT 7995 Directed Study in Marketing Cr. 1-3**

Advanced independent readings and research under supervision of a graduate faculty member in areas of special interest to student and faculty member. Offered Every Term.

**Prerequisites:** BA 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 5 Credits**

## MLC - Med-Direct Community Learning

**MLC 0100 Wayne Med Direct Pre-Freshman Summer Enrichment Program Cr. 0**

Offered to Wayne Med-Direct scholars in the summer semester prior to freshman year, the course is designed as an orientation to campus life and the Med-Direct program. Successful completion of this course is mandatory for all Wayne Med-Direct scholars. Offered Spring/Summer.

**MLC 1100 Wayne Med Direct Summer Research Program Cr. 3**

Designed to provide a basic science research experience. Successful completion of this course is mandatory for all scholars as a part of the Wayne Med-Direct program. Offered Spring/Summer.

**Prerequisite:** UGR 1050 with a minimum grade of D-

**MLC 3100 Wayne Med-Direct Study Abroad Cr. 3**

Offered in the summer semester of junior year to Wayne Med-Direct scholars and designed to provide the students with an opportunity to explore the fields of medicine and public health in China in addition to having them experience Chinese culture. Examines important aspects of Chinese culture – history, philosophy, language, literature, martial arts, and calligraphy – as well as the traditional Chinese Medicine practices and modern Chinese medicine and public health practices. Offered Spring/Summer.

## MLS - Medical Laboratory Science

**MLS 2080 Medical Laboratory Science Seminar Cr. 1**

Introduction to the medical laboratory science profession, educational requirements, and opportunities. Offered Every Term.

**MLS 3020 Hematology I Cr. 4**

Basic study of blood-forming organs and components of blood; explanation of basic hematological procedures. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$75

**MLS 3040 Immunohematology I Cr. 4**

Introduction to principles of immunohematology and theory and practice of routine testing procedures employed in the clinical blood bank. Survey of the organization and operation of a blood bank. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$130

**MLS 3080 Instrumentation Lecture and Laboratory Cr. 4**

Introduction to fundamental laws of electronics, the theoretical basis of instrument design, and quality control in laboratory testing. Application of instrumental methods, including spectrophotometric, fluometric, electroanalytical, and chromatographic methods to the clinical laboratory. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$85

**MLS 3100 Urine and Body Fluid Analysis Cr. 3**

Specimen collection, preparation, and examination of urine and other body fluids such as spinal fluid, semen, and synovial fluid. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$85

**MLS 3280 Clinical Chemistry Lecture and Laboratory Cr. 4**

Methodologies and interpretations of results of clinical chemistry diagnostic tests. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$85

**MLS 3330 Medical Terminology Cr. 1**

Study of medical terms in a body system approach. Review of anatomy and physiology. Offered Every Term.

**MLS 4000 Clinical Hematology Cr. 5**

This course takes place at one of the clinical laboratories affiliated with the MLS Program. The experiential training consists of performing assays on specimens, microscopic identification of cells and other formed elements, and correlating lab results with clinical findings in hematology, urinalysis, and coagulation. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$43

**MLS 4010 Clinical Chemistry Cr. 4**

This course takes place at one of the clinical laboratories affiliated with the MLS Program. The experiential training consists of biochemical analysis of constituents of blood and other body fluids, operating and maintaining automated instruments and correlating lab results with clinical findings in clinical chemistry. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$43

**MLS 4020 Clinical Blood Bank Cr. 3**

This course takes place at one of the clinical laboratories affiliated with the MLS Program. The experiential training consists of application of the theory and principles involving antigen-antibody reactions of blood. Students perform assays on specimens and obtain, store, and prepare whole blood and blood components for transfusion, and correlate lab results with clinical findings. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$43

**MLS 4030 Clinical Microbiology Cr. 4**

This course takes place at one of the clinical laboratories affiliated with the program. The experiential training consists of obtaining, culturing, identification and determining antibiotic sensitivity of microorganisms causing infection or infestation. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$43

**MLS 4040 Laboratory Operations Cr. 3**

Laboratory management issues and problems, with emphasis on the hospital setting. Includes professional conduct, management theory, interpersonal and technical skills, legal and regulatory issues, computers in laboratories, quality assessment and improvement, educational methodologies, and clinical study design. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**MLS 4210 Hemostasis Lecture and Laboratory Cr. 2**

Lecture and laboratory course covering principles of hemostasis and assessment of hemostasis status. Performance and interpretation of diagnostic tests, along with problem solving and correlation of laboratory findings with disease states. Offered Winter.

**Fees:** \$75

**MLS 4230 Hematology II Cr. 3**

Continuation of Hematology I. Introduction to hematologic neoplasms. Application of laboratory methods for diagnosis and treatment. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$85

**MLS 4240 Immunohematology II Cr. 3**

Advanced immunohematology practices, including investigation and resolution of unusual serological conditions related to transfusion of blood and blood components, blood component processing and transfusion reaction investigation. Continuation of MLS 3040. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$65

**MLS 4990 Professional Directed Study Cr. 3**

Independent study under faculty supervision. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**MLS 5500 Immunology and Serology Cr. 3**

Applications of immunology and serology in a clinical laboratory setting, including relevance to human medicine, performance and interpretation of diagnostic tests, along with problem solving and correlation of laboratory findings with disease states. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$90

**MLS 5510 Diagnostic Microbiology I Cr. 4**

Introduction to the fundamental principles of clinical microbiology with in-depth study of important human bacterial pathogens, and of principles and methods used in the diagnostic bacteriology laboratory. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$219



**MLS 5520 Diagnostic Microbiology II Cr. 4**

Lecture and laboratory course in diagnostic microbiology with a focus on clinical virology, mycology, and parasitology and the recognition of bacterial pathogens according to body site. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$140

**MLS 5530 Medical Laboratory Science Simulation Laboratory Cr. 2**

Application of previously acquired theory and techniques in a simulated clinical laboratory, with emphasis on work organization, correlation of results, management, decision-making, and quality assurance. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$100

**MLS 5550 Molecular Diagnostics Cr. 3**

Review of molecular biology principles applicable to current testing systems. Laboratory techniques to elucidate molecular structure and disease states, including DNA hybridization, agarose gel electrophoresis, southern and western blot techniques, DNA sequencing, PCR. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$90

**MLS 5993 Writing Intensive Course in Medical Laboratory Science Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member.

Course must be elected in conjunction with designated corequisite; see Schedule of Classes for corequisites available each term. Satisfies University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**MLS 5996 MLS Clinical Pathology Review Cr. 2**

A review of the Medical Laboratory Science Body of Knowledge. In-class discussions, case studies, and quizzes to prepare students for the certification examination. This course culminates in a comprehensive mock exam. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

## MS - Mortuary Science

**MS 3100 Thanatochemistry Cr. 2**

Discussion, problem solving, and application of general inorganic, organic and biochemistry to postmortem changes, biologic preservation, and embalming chemistry. Course includes a problem-based laboratory and case studies with correlations to embalming chemistry. Offered Winter.

**Prerequisite:** CHM 1000 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 3300 Religions, Values, and Death Cr. 2**

Various religious, secular, and philosophical views regarding the value of life, the meaning of death, and life after death. Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science, BS in Pathologist Assistant or PBC in Forensic Investigation programs.

**MS 3400 Funeral Service Law and Ethics I Cr. 3**

Business law and legal environment affecting funeral service.

Introduction to American legal system, court structure, and civil & criminal procedure. Contract law, property law and UCC Articles 2, 3, and 9. Survey of tort law. Discussion and problems based on the ethical responsibilities of funeral practitioners Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 3410 Funeral Service Law and Ethics II Cr. 3**

Legal principles affecting funeral service including legal status of a deceased, rights and responsibilities affecting disposition, licensing laws, regulatory compliance, preneed and probate law. Funeral service torts and discussion and problems on due diligence, best practices, and ethical responsibilities of funeral practitioners. Offered Spring/Summer.

**Prerequisite:** MS 3400 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$60

**MS 3500 Embalming I Cr. 2**

Theories, practices, and techniques of biologic preservation and disinfection of human remains; case analyses; methods of application of embalming chemicals; use of instruments and equipment; special case embalming. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$200

**MS 3510 Embalming II Cr. 2**

Dynamics of decomposition; influence of disease and its treatment on the embalming process; public health considerations; anatomical embalming; disaster response. Offered Winter.

**Prerequisite:** MS 3500 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$200

**MS 3600 Restorative Art I Cr. 3**

Theories, methods, and techniques used in the restoration of superficial tissues and features. Color theory, cosmetology, facial proportions, skin tones correlated with reconstruction. Clay and wax modeling. Case studies in restorative art. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$50

**MS 3610 Restorative Art II Cr. 2**

Continuation of MS 3600. Offered Winter.

**Prerequisite:** MS 3600 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$35

**MS 3620 Preparation for Disposition Cr. 2**

Preparing the decedent for disposition, including handling of personal effects, refrigeration, container selection, identification viewing, dressing, transportation and special ceremonial preparation. Offered Spring/Summer.

**Prerequisite:** MS 3610 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$200

**MS 3760 Funeral Service History and Trends Cr. 2**

Basic human need to memorialize the dead, examined throughout history. Funeralization as a process affected by social and religious change. The funeral service professional in a socio-temporal context. Possible future practices based on understanding of historical records and current trends. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 3800 Funeral Directing Cr. 3**

Funeral service operations. Practical applications including field trips. Funeral service process from first call to final disposition. Terminology, government regulations, ethics, professional conduct, vital statistics records, necessary forms. Religious, ethnic, fraternal and military variations. Computer technologies and applications. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$80

**MS 3810 Funeral Service Marketing and Merchandising Cr. 3**

Marketing, merchandising, public relations, pre-need planning, personnel management, job-seeking skills, licensing requirements; planning, building and establishing of funeral home. Government regulations. Offered Winter.

**Prerequisite:** MS 3800 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$80

**MS 3830 Psychology of Death and Dying Cr. 3**

Various social and cultural perspectives; psychosocial changes related to death, dying, and disposition; special cases: sudden, violent or unexpected death. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 3840 Funeral Service Applications Cr. 3**

Case studies involving discussion and analysis of National Board Examination (NBE) subject matter application to funeral service practice. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 3970 Practicum I Cr. 3**

Student placement in licensed funeral service facility to acquire practical experience in basic funeral service skills. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$30

**MS 3980 Practicum II Cr. 3**

Continuation of the Practicum I course. Students are placed in a licensed funeral service facility to acquire practical experience in advanced funeral service skills. Offered Winter.

**Prerequisite:** MS 3970 with a minimum grade of P

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$30

**MS 4000 Practicum III Cr. 3**

Continuation of the Practicum II course. Students are placed in a licensed funeral service facility to acquire practical experience in advanced funeral service skills and evaluation of clinical embalming competency. Offered Spring/Summer.

**Prerequisite:** MS 3970 with a minimum grade of P and MS 3980 with a minimum grade of P

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 4010 Forensic Laboratory Standards Cr. 3**

The forensic lab, its organization, accreditation, and regulation; quality control, safety, and documentation; discussion and demonstration of methods for collection and processing of specimens. Specimen extraction techniques and analyte-specific analytical instrumentation used in forensic laboratory. Basis for the forensic logic tree. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Forensic Invest and Policing or Forensic Investigation.

**MS 4011 Interview and Interrogation Techniques Cr. 3**

Appropriate and effective techniques for conducting interviews in forensic investigations. Effective and efficient techniques for interviewing witnesses and interrogating defendants. Legal issues surrounding investigations; strategies in gathering information and obtaining confessions. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Forensic Invest and Policing or Forensic Investigation.

**MS 4050 Anatomy for Mortuary Science Cr. 2**

Detailed systemic study of human anatomy. Laboratory work consists of demonstrations and selected dissections; emphasis on vascular anatomy and adjacent structural relationships; anatomic guides. Material Fee As Indicated In The Schedule of Classes. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$30

**MS 4200 Introduction to Forensic Anatomic Pathology Cr. 3**

Role of medical examiner, early signs of death, medical investigation of cause of death, methods for identification of remains, medicolegal aspects of forensic science, toxicology specimen techniques, legal issues in anatomic/forensic pathology. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Pathologist Assistant or PBC in Forensic Investigation programs; enrollment limited to students in the Pharmacy and Health Sciences.

**MS 4250 Pathology and Microbiology for Mortuary Science Cr. 3**

Discussion and application of pathogenic microbial agents; host-parasite relationships; disinfection-decontamination; immunology; epidemiology of infectious disease; and public health issues. Basic study of disease states and processes that may negatively impact restorative art efforts or the success of preservation through embalming. Lecture and problem-based laboratory/case studies. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 4450 Funeral Service Management and Accounting Cr. 3**

Financial aspects of starting and operating a funeral business; basic accounting principles; dealings with fellow professionals and government agencies. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 4600 Clinical Forensic Pathology Cr. 3-5**

Assisting pathologist in determining cause of death; basic methods for identifying remains with regard to age, sex, and race; techniques of photographic record keeping. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment limited to students in the BS in Pathologist Assistant or PBC in Forensic Investigation programs.

**Fees:** \$30

**MS 5010 Forensic Analysis Cr. 2**

New developments in the forensic laboratory; current areas of research and potential applications. Forensic logic trees and forensic case applications; novel techniques in crime scene investigation and analysis. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Forensic Invest and Policing or Forensic Investigation.

**MS 5011 Forensic Investigation of Firearms, Ballistics, and Explosives Cr. 4**

Introduction to firearm operation, identification, ballistics and explosive materials and devices from the perspective of forensic evaluation. Principles of forensic evidence collection and analysis discussed in lab. Offered in collaboration with Bioengineering Center Ballistic Research Laboratory. Offered Winter.

**Prerequisite:** MS 4010 with a minimum grade of C or MS 6010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Forensic Invest and Policing or Forensic Investigation.

**Fees:** \$40

**MS 5350 Funeral Service Communications Cr. 1**

Survey of professional communication in funeral service, including: verbal and non-verbal communication strategies, email and written communication, principles of customer service, public relations, networking, conflict resolution, workplace and professional expectations. Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**MS 5550 Special Topics in Mortuary Science Cr. 1**

Lectures and discussions; invited speakers on current topics in the profession. Topics to be announced in Schedule of Classes. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science or PBC in Forensic Investigation programs.

**Repeatable for 3 Credits**

**MS 5990 Directed Study Cr. 3**

Library and/or laboratory study of current or pending professional development; study of an existing problem, study or development of new procedures or techniques. Assigned project under the guidance of departmental/program faculty member. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science or PBC in Forensic Investigation programs.

**Repeatable for 9 Credits**

**MS 5996 Professional Review Cr. 3**

A comprehensive review and assessment in preparation for the National Board Examination consisting of assigned questions and in-class discussion and assessment, culminating in the Practice National Board Examination. Students receive a grade of Y at the conclusion of the course and have 30 days to take the National Board Examination after completion of the Mortuary Science professional coursework. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Mortuary Science program.

**Fees:** \$100

## MSE - Materials Science and Engineering

**MSE 5350 Polymer Science Cr. 3**

Fundamental relationships between chemical structure and physical properties of high polymers. Basic structures, states and transitions of polymers. Polymerization reactions and processes. Molecular weight, viscous flow and mechanical properties of polymers. Offered Fall.

**Prerequisites:** MAT 2150 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$10

**Equivalent:** CHE 5350

**MSE 5360 Polymer Processing Cr. 3**

A detailed analysis of polymer processing. Rheology of polymers, flow in tubes, calendaring, extrusion, coating and injection molding. Offered Intermittently.

**Prerequisites:** CHE 3200 with a minimum grade of C-

**Fees:** \$10

**Equivalent:** CHE 5360

**MSE 5385 Biocompatibility Cr. 4**

Introduces concepts and applications of biocompatibility. Cellular response to implants (e.g. prosthetics, gene therapies, cells, etc.) will be covered in detail, including wound healing, immune response, and foreign body response. Topics include stem cell effects; in vitro and in vivo studies; and synthetic and natural material body response. The course material will be applicable to implant design, gene therapies, and stem cell treatments. Offered Winter.

**Prerequisites:** BIO 1050 with a minimum grade of C-, BIO 1500 with a minimum grade of C-, or BIO 1510 with a minimum grade of C-

**Equivalent:** BME 5380

**MSE 5650 Surface Science Cr. 3**

An introduction to the science and technology of surface phenomena, including surface structure, surface energy, surface diffusion, crystal growth and selected applications of technological importance. Offered Intermittently.

**Prerequisites:** BE 1300 with a minimum grade of D- and CHM 5440 with a minimum grade of D-

**MSE 7100 Advanced Engineering Mathematics Cr. 3**

Presentation, evaluation and use of mathematical methods within the framework of engineering problems; including ordinary and partial differential equations, transforms and vector operations. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** CHE 7100

**MSE 7180 Advanced Topics in Biomaterials and Tissue Biomechanics Cr. 4**

Seminar format: advanced topics presented to the class; lectures by the instructor and by the participants based on literature reviews. Topics determined by student interest. Offered Every Other Fall.

**Prerequisite:** BME 5210 with a minimum grade of C or BME 5370 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BME 7300, ME 7180

**MSE 7300 Advanced Thermodynamics Cr. 3**

Advanced presentation of the principles of thermodynamics; application to open systems, phase diagrams and chemical equilibria. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** CHE 7300

**MSE 7400 Mechanical Behavior of Materials Cr. 3**

Analysis of elastic and plastic deformation of single crystals and polycrystalline materials, emphasizing the relations between metallurgical microstructure and material properties. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MSE 7990 Directed Study Cr. 1-6**

Library investigation of an approved project in materials science and engineering. Independent study, conferences with supervisor and preparation of a comprehensive report. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MSE 7995 Special Topics in Materials Science II Cr. 1-4**

A consideration of special subject matter in materials science. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MSE 8996 Research Cr. 1-10**

Library and laboratory investigation of an approved proposal for advanced research project. Conferences and periodic oral progress reports. Comprehensive report of entire project upon completion. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MSE 8997 Seminar Cr. 0.5**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MSE 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**MSE 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MSE 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MSE 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MSE 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MSE 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MSE 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MSE 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** MSE 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**MSE 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## MSL: Master of Studies in Law

**MSL 8900 Working with Lawyers Cr. 3**

Offers an introduction to the language of the law and the basic structure of the legal system. Teaches legal research and writing for non-lawyers, with a focus on producing investigative reports. Deals with the non-lawyer professional's interface with legal counsel, both within and outside the organization. Includes instruction regarding the types of activities non-lawyers can handle and what activities should be reserved for lawyers, emphasizing the relevant ethical constraints. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8901 Survey of the Common Law Cr. 3**

Provides an overview of torts, contracts, and property. Includes an introduction to basic legal concepts, especially those likely to be encountered in the business world, including agency, vicarious liability, the differences between civil and criminal liability, and how rights are enforced through legal remedies. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8902 Civil Procedure and Introduction to Dispute Resolution Cr. 3**

Teaches how legal disputes unfold, from demand letters, pleadings, and service of process through discovery, trial, and appeal. It addresses both formal courtroom process — the life-cycle of a lawsuit — and informal processes such as negotiation, mediation, and arbitration. The course touches upon due process issues and includes an overview of evidence principles. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8903 Government Organization and Regulation Cr. 3**

Introduces the structures of government. Covers the key concepts of our constitutional system, including the enumerated powers of the federal government, separation of powers, federalism, the role of the judiciary in constitutional interpretation, and criminal procedure. It also addresses the processes of legislation and administrative law. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8905 Administrative Law for Non-Lawyers Cr. 3**

This course introduces students to the function of administrative law in the United States. Administrative law impacts multiple sectors of life, for example health and environment, and understanding how it works is important for those who wish to understand or influence policy. This course will provide information on what agencies do, how they fit into our governmental system, and how their power is limited. Students will leave the course with a better understanding of how administrative law impacts multiple sectors of public life in the United States and how they can interact with and influence the administrative process. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8910 Employment Law: Legal Obligations Cr. 3**

Key topics cover wages and hours, hiring and termination, performance evaluation, employee rights (including safety, privacy, use of social media, and whistle-blowing), unemployment compensation, and workers' compensation. It includes an introduction to employment-related legislation, including the WARN Act, Fair Labor Standards Act, Occupational Safety and Health Act, non-compete and nondisclosure agreements, trade secrets, and employment-related immigration. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8911 Employment Law: Workplace Management Cr. 3**

This course covers topics such as recruiting employees, assembling an application pool, the application and interview process, pre-employment testing and screening, performance management, severance and post-employment obligations, arbitration agreements, and restrictive covenants. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.



**MSL 8912 Employment Discrimination Cr. 3**

Discrimination based on race, religion, sex, national origin, sexual orientation, age, and disability, including the role of the Equal Employment Opportunity Commission. Includes diversity and inclusion, affirmative action, unconscious bias, and disability accommodations. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8913 Labor Law and Practice Cr. 3**

This course teaches about the right to organize, engage in collective bargaining, strike, and pursue grievances under the National Labor Relations Act and other labor laws. It addresses the role of labor unions and other organizations in both the private and public sectors, and includes treatment of collective bargaining agreements, unfair labor practices, and labor arbitration. The course may include some comparative content, such as European works councils. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8914 Employee Benefits for Human Resource Specialists Cr. 3**

Addresses employment-based retirement plans, health plans, short-term and long-term disability insurance, executive compensation, and fringe benefits. Features coverage of relevant statutes, including the Employee Retirement Income Security Act, Internal Revenue Code (as applicable to benefits), COBRA health insurance coverage, Health Insurance Portability and Accountability Act, and Family and Medical Leave Act. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8915 Dispute Resolution in Employment Cr. 2**

This course consists of a context-based survey of the dispute resolution processes most often used in employment, including negotiation, mediation, arbitration, and hybrid processes, as well as human resources investigations, interaction with governmental regulators, and termination agreements. It gives consideration to emotionally volatile interactions, and includes some hands-on simulation. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8930 Healthcare Organizations and Administration Cr. 3**

This course provides an introduction to healthcare organizations in the United States and legal issues impacting their administration. The course will provide information on types of healthcare organizations, operation of healthcare organizations, and major policies impacting these organizations. Students will leave the course with an overview of the foundational information needed for those who lead in a healthcare organization. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8931 Regulating the Conduct of Healthcare Providers Cr. 3**

This course introduces students to the complex set of federal and state regulations which govern the work of healthcare providers. Students will learn about licensing, scope of practice, and discipline of healthcare providers. They will also learn about medical malpractice as it relates to providers. This course seeks to provide those who work in leadership roles in healthcare organizations a survey of the information needed to understand the specialized regulatory landscape impacting those who work in the healthcare system. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8932 Patient Privacy and Control of Patient Medical Records Cr. 3**

This course introduces students to legal issues applicable to health information privacy. The sensitive and personal nature of health information and the expansion of modern digital technologies raise important concerns related to how this information is handled, protected, and utilized, particularly in healthcare settings. This course will examine how law governs the uses of health information. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8933 Health Insurance and Healthcare Fraud Cr. 3**

The course offers a survey of the myriad legal rules that govern health insurance and healthcare fraud in the United States, primarily on the federal level. Key statutes discussed include the Patient Protection and Affordable Care Act, Medicare, Medicaid, the False Claims Act, the Anti-Kickback Statute, Stark laws, and the Employee Retirement Income Security Act. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8934 Legal Issues in Public Health Cr. 3**

This course introduces students to the importance of law and policy as a critical component of public health. The course will provide key information regarding the difference between population based public health and health care and the tensions it can create between private rights and public good. It will provide an overview of the variety of types of laws which are commonly encountered in public health, and it will provide students with an overview of tools non-lawyers may use to understand and/or influence public health policies in their work. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8935 Legal Issues in Bioethics Cr. 3**

This course introduces students to legal issues in bioethics. Bioethics is a discipline that examines ethical and social issues that arise from developments in medicine, biological sciences, emerging technologies, and public health. This course will address the legal and policy implications of bioethics in our modern society. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

**MSL 8995 Capstone Experience Cr. 3**

This course represents the culmination of a student's course of study leading to the Master of Studies in Law (MSL) degree. It requires students to draw upon and synthesize what they have learned from their other courses and apply that knowledge in a way that demonstrates mastery of the subject matter. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Master of Studies in Law program; enrollment is limited to Graduate level students.

## MUA - Music Ensembles and General Courses

**MUA 0804 Warrior Band Cr. 0**

Warrior band performs for all home football games during fall term and basketball games during late fall and winter terms. Performances for University special events may be scheduled. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MUA 0900 General Lectures and Concerts Cr. 0**

Lectures by visiting scholars; recitals by invited guest artists; student and faculty recitals, concerts and convocations. Offered Fall, Winter.

**MUA 1700 Guitar Class Cr. 2**

Fundamentals in guitar playing; techniques, hand positions, bar chords, general performance practices. Offered Fall, Winter.

**Fees:** \$75

**Repeatable for 8 Credits**

**MUA 1710 Piano Class Cr. 2**

Rudiments of rhythmic and staff notation, beginning keyboard technique, hand positions, scales, simple compositions. Offered Fall, Winter.

**Fees:** \$75

**Repeatable for 8 Credits**

**MUA 1720 Voice Techniques and Pedagogy Cr. 2**

Fundamentals in voice training and pedagogy for music majors. Offered Fall.

**Prerequisite:** MUT 1140 with a minimum grade of C and MUT 1150 with a minimum grade of C

**Repeatable for 8 Credits**

**MUA 1730 String Techniques and Pedagogy Cr. 2**

Techniques and fundamental problems in the playing and teaching of stringed instruments. Offered Fall, Winter.

**Prerequisites:** MUT 1140 with a minimum grade of D- or MUT 1100 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$75

**Repeatable for 6 Credits**

**MUA 1740 Woodwind Techniques and Pedagogy Cr. 2**

Techniques and fundamental problems in the playing and teaching of woodwind instruments. Offered Fall, Winter.

**Prerequisites:** MUT 1140 with a minimum grade of D- or MUT 1100 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$75

**Repeatable for 6 Credits**

**MUA 1750 Brasswind Techniques and Pedagogy Cr. 2**

Techniques and fundamental problems in the playing and teaching of brasswind instruments. Offered Fall.

**Prerequisites:** MUT 1140 with a minimum grade of D- or MUT 1100 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$75

**Repeatable for 6 Credits**

**MUA 1760 Percussion Techniques and Pedagogy Cr. 2**

Techniques and fundamental problems in the playing and teaching of percussion instruments. Offered Fall.

**Prerequisites:** MUT 1140 with a minimum grade of D- or MUT 1100 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$75

**MUA 1795 Piano Skills I Cr. 2**

Repertoire, scales, sight reading, harmonization, and simple transpositions. Offered Every Term.

**Prerequisites:** MUA 1710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors; enrollment limited to students in the BA in Fine Arts or Bachelor of Music programs.

**Fees:** \$75

**MUA 2400 Survey of the Music Business Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry

Overview of music business, intellectual property basics, and music business careers. Survey of the economic structure and social institutions of the music industry. Examination of problems in cultural careers. Offered Winter.

**MUA 2500 Music Technology Cr. 3**

Introductory class on music technology. Learn to record, edit, and export music using a computer. Learn the basics of audio hardware setup for music, multimedia, and classes. Offered Every Term.

**Fees:** \$75

**MUA 2510 Studio Recording Techniques Cr. 2**

Learn techniques of multi-track recording. Students will learn how to observe and understand equipment in a professional recording studio. Offered Fall.

**Prerequisite:** MUA 2500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$75

**MUA 2530 Electronic Music Synthesis Cr. 3**

Learn to create sounds by manipulating electronic signals. Topics include fundamentals of synthesizers, theories of digital signal processing, and principle of sound design. Offered Fall.

**Prerequisite:** MUA 2500 with a minimum grade of C

**Fees:** \$75

**MUA 2720 Voice Class Cr. 2**

Fundamentals in voice training. Correct breathing: tone placement: articulation vocalises. Offered Fall, Winter.

**Repeatable for 8 Credits**

**MUA 2795 Piano Skills II Cr. 2**

Continuation of MUA 1795; development of basic piano skills to a higher level. Offered Winter, Spring/Summer.

**Prerequisite:** MUA 1795 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment limited to students in the BA in Fine Arts or Bachelor of Music programs.

**Fees:** \$75

**MUA 2800 University Bands Cr. 1**

. Offered Fall, Winter.

**Fees:** \$30

**Repeatable for 99 Credits**

**MUA 2802 Chamber Winds Cr. 1**

Offered Fall, Winter.

**Fees:** \$25

**Repeatable for 10 Credits**

**MUA 2804 Warrior Band Cr. 1**

Warrior band performs for all home football games during fall term and basketball games during late fall and winter terms. Performances for University special events may be scheduled. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$30

**Repeatable for 8 Credits**

**MUA 2806 Campus Band Cr. 0**

Co-curricular concert band open to all University students. Campus Band performs one formal concert during winter term. Performances for University special events may be scheduled. Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$30

**MUA 2810 University Symphony Orchestra Cr. 1**

Offered Fall, Winter.

**Fees:** \$30

**Repeatable for 99 Credits**

**MUA 2820 Jazz Big Band Cr. 1**

Offered Fall, Winter.

**Fees:** \$30

**Repeatable for 99 Credits**

**MUA 2822 Jazz Guitar Ensemble Cr. 1**

Large ensemble for jazz guitar majors/principals. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$30

**Repeatable for 99 Credits**

**MUA 2824 Jazztet Cr. 1**

Select ensemble for jazz majors. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$25

**Repeatable for 10 Credits**

**MUA 2826 Jazz Combos Cr. 1**

Small ensemble for jazz majors. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$25

**Repeatable for 10 Credits**

**MUA 2830 Men's Glee Club Cr. 1**

Music majors must enroll for one credit to satisfy degree requirements.

Offered Fall, Winter.

**Fees:** \$20

**Repeatable for 99 Credits**

**MUA 2840 Choral Union Cr. 1**

Offered Fall, Winter.

**Fees:** \$30

**Repeatable for 99 Credits**

**MUA 2850 Concert Chorale Cr. 1**

Offered Fall, Winter.

**Fees:** \$30

**Repeatable for 99 Credits**

**MUA 2860 Opera Workshop Cr. 1**

Offered Fall, Winter.

**Fees:** \$30

**Repeatable for 10 Credits**

**MUA 2870 Women's Chorale Cr. 1**

Offered Fall, Winter.

**Fees:** \$25

**Repeatable for 99 Credits**

**MUA 2880 Chamber Music and Special Ensembles Cr. 1**

All forms including: flute ensemble, percussion ensemble, string trios and quartets, small wind or brass ensembles, and mixed ensembles. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music.

**Fees:** \$25

**Repeatable for 10 Credits**

**MUA 2891 Electronic Music Ensemble Cr. 1**

Learn to play electronic instruments in an ensemble. Current and vintage electronic instruments as well as approved traditional instruments are being used to perform contemporary electronic music repertoire. Offered Fall, Winter.

**Prerequisite:** MUA 2500 with a minimum grade of C or MUA 2530 with a minimum grade of C

**Fees:** \$75

**Repeatable for 2 Credits**

**MUA 3500 Music IP and Stakeholders Cr. 3**

Exploration of intellectual property and music law, including copyright, contracts, music licensing, and negotiation. In-depth examination of relationships between stakeholder entities. Offered Fall.

**MUA 3510 Mixing and Mastering Cr. 2**

Students will learn project management skills through proper session documentation and billing. Topics include surround sound mixing, live sound, and large ensemble production techniques. Offered Winter.

**Prerequisite:** MUA 2510 with a minimum grade of C

**Fees:** \$75

**MUA 3530 Advanced Music Synthesis Cr. 3**

Covers the basics of audio programming using text-based audio applications. Students will learn to create their own plugins and software synthesizers. Offered Winter.

**Prerequisite:** MUA 2530 with a minimum grade of C

**Fees:** \$75

**MUA 3550 Advanced Studio Techniques Cr. 2**

Examines project management skills through proper session documentation and billing. Topics include surround sound mixing, live sound, and large ensemble production techniques. Offered Fall.

**Prerequisite:** MUA 3510 with a minimum grade of C

**Fees:** \$75

**MUA 3670 Conducting Techniques I Cr. 2**

Rudiments of conducting; special attention to baton techniques. Offered Fall.

**Prerequisite:** MUT 2160 with a minimum grade of C and MUT 2170 with a minimum grade of C

**MUA 3680 Conducting Techniques II Cr. 2**

Continuation of MUA 3670. Score reading and rehearsal techniques. Offered Winter.

**Prerequisite:** MUA 3670 with a minimum grade of C

**MUA 3795 Advanced Piano Skills Cr. 2**

Continuation of MUA 2795; emphasis on jazz skills and styles. Offered Fall.

**Prerequisite:** MUA 2795 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the Bachelor of Music program.

**Fees:** \$75

**MUA 3990 Directed Study Cr. 1-3**

Individualized research and work in a particular aspect of music under the supervision of a faculty member. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students with a major, minor, or concentration in Music or Music Honors.

**Repeatable for 6 Credits**

**MUA 4000 Marketing and Artist Management in Music Cr. 3**

Artist management theory and practice. The application of product, sales, and brand marketing to the artists, stakeholders and products created in the for and non-profit music industry. Offered Every Other Winter.

**Prerequisite:** MUA 3500 with a minimum grade of C

**MUA 4010 Audio Electronics Cr. 3**

Examines practical electronics for music production and electronic music composition. Topics include basic electronics, building and repairing audio equipments, and building analog and digital signal processors and synthesizers. Offered Fall.

**Prerequisites:** (MAT 1070 with a minimum grade of C and MUA 3510 with a minimum grade of C) or MUA 3530 with a minimum grade of C

**MUA 4020 Theories of Electronic Music Cr. 3**

Covers advanced digital theories of electronic music synthesis and production. Topics include digital signal processing, advanced audio programming, interactive audio, and audio synthesis. Offered Fall.

**Prerequisite:** MUA 3510 with a minimum grade of C or MUA 3530 with a minimum grade of C

**MUA 4030 Sound Design for Visual Media Cr. 3**

Covers sound design and audio treatment for visual media. Topics include research and creation of sound for film, web, sound libraries, instructional technology, sound installations, and non-linear sound design (video games). Offered Winter.

**Prerequisite:** MUA 3510 with a minimum grade of C or MUA 3530 with a minimum grade of C

**MUA 4040 Electroacoustic Music Cr. 3**

Introduces techniques, aesthetics, and composition of electroacoustic music. Topics include analytical techniques for electronic music, creative usage of audio hardware and software, and advanced electroacoustic music performance. Offered Fall.

**Prerequisite:** MUA 3510 with a minimum grade of C or MUA 3530 with a minimum grade of C

**MUA 4500 Music Entrepreneurship and Leadership Cr. 3**

Exploration of entrepreneurship, the practice of entrepreneurial skills, arts leadership elements and skills, and basic organizational design in the context of the music industry. Offered Every Other Fall.

**Prerequisite:** MUA 3500 with a minimum grade of C

**MUA 4620 Music Business Internship Cr. 1-3**

Directly supervised professional experience in the music and creative arts industries and related fields (marketing, management, publicity, public relations, and live performance). Offered Every Term.

**Prerequisite:** MUA 2400 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the Bachelor of Music program.

**Repeatable for 6 Credits**

**MUA 4650 Directed Study: Internships Cr. 1-3**

Directly supervised professional experience in the music and creative arts industries and related fields (marketing, music technology, recording, publicity, public relations). Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment limited to students in the Bachelor of Music program.

**Repeatable for 6 Credits**

**MUA 4950 Music Technology Senior Project Cr. 1**

Students will create a large-scale, long-term project that demonstrates the skills learned in the music technology classes. Offered Winter.

**Prerequisite:** MUA 4650 (may be taken concurrently) with a minimum grade of C

**MUA 4990 BA Project Cr. 2**

Directed study leading to completion of the B.A. project in music. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major, minor, or concentration in Music or Music Honors; enrollment limited to students in a Bachelor of Arts degree.

**Equivalent:** MUH 4990, MUT 4990

**MUA 5690 Stage Band Direction Cr. 1**

Techniques of big-band direction in a jazz medium. Offered for undergraduate credit only. Offered Fall, Winter.

**Prerequisite:** MUA 3670 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 3 Credits**

**MUA 5800 Strategy and Organization in Music Cr. 3**

Strategic management, organizational behavior, and organizational structures in the for and non-profit music industry with a term-long consulting project for an external client. Offered Every Other Fall.

**Prerequisite:** MUA 3500 with a minimum grade of C

**Fees:** \$50

**MUA 5900 Music Industry Seminar Cr. 1**

Real-world experience running and operating a record label by sourcing recorded music products to release. Practice in legal, business, and industry norms. Significant out-of-classroom work is expected. Offered Fall, Winter.

**Prerequisite:** MUA 3500 with a minimum grade of C and MUA 4000 with a minimum grade of C

**Repeatable for 4 Credits**

**MUA 6500 Music IP and Stakeholders Cr. 3**

Exploration of intellectual property and music law, including copyright, contracts, music licensing, and negotiation. In-depth examination of relationships between stakeholder entities. Offered Fall.

**MUA 6510 Mixing and Mastering Cr. 3**

Students will learn project management skills through proper session documentation and billing. Topics include surround sound mixing, live sound, and large ensemble production techniques. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUA 6530 Advanced Music Synthesis Cr. 3**

Covers the basics of audio programming using text-based audio applications. Students will learn to create their own plugins and software synthesizers. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUA 6540 Advanced Studio Techniques Cr. 2**

Examines project management skills through proper session documentation and billing. Topics include surround sound mixing, live sound, and large ensemble production techniques. Offered Fall.

**Prerequisite:** MUA 6510 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUA 6550 Marketing and Artist Management in Music Cr. 3**

Artist management theory and practice. The application of product, sales, and brand marketing to the artists, stakeholders and products created in the for and non-profit music industry. Offered Winter.

**Prerequisite:** MUA 6500 with a minimum grade of C

**MUA 6570 Music Entrepreneurship and Leadership Cr. 3**

Exploration of entrepreneurship, the practice of entrepreneurial skills, arts leadership elements and skills, and basic organizational design in the context of the music industry. Offered Winter.

**Prerequisite:** MUA 6500 with a minimum grade of C



**MUA 6800 Music Internship Cr. 1-3**

The music internship is designed to provide educational experiences to music students beyond those offered in the classroom. During the internship, students develop professional skills and knowledge in music business, technology, or other areas of musical practice. Students are placed in a studio, business, or other institution in the metro-Detroit area and supervised by local personnel, who provide regular reports on the student's performance to the faculty of record. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**MUA 7010 Audio Electronics Cr. 3**

Examines practical electronics for music production and electronic music composition. Topics include basic electronics, building and repairing audio equipment, and building analog and digital signal processors and synthesizers. Offered Fall.

**Prerequisite:** MUA 6510 with a minimum grade of B or MUA 6530 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUA 7020 Theories of Electronic Music Cr. 3**

Covers advanced digital theories of electronic music synthesis and production. Topics include digital signal processing, advanced audio programming, interactive audio, and audio synthesis. Offered Fall.

**Prerequisite:** MUA 6510 with a minimum grade of B or MUA 6530 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUA 7030 Sound Design for Visual Media Cr. 3**

Covers sound design and audio treatment for visual media. Topics include research and creation of sound for film, web, sound libraries, instructional technology, sound installations, and non-linear sound design (video games). Offered Winter.

**Prerequisite:** MUA 6510 with a minimum grade of B or MUA 6530 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUA 7040 Electroacoustic Music Cr. 3**

Introduces techniques, aesthetics, and composition of electroacoustic music. Topics include analytical techniques for electronic music, creative usage of audio hardware and software, and advanced electroacoustic music performance. Offered Fall.

**Prerequisite:** MUA 6510 with a minimum grade of B or MUA 6530 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUA 7080 Strategy and Organization in Music Cr. 3**

Strategic management, organizational behavior, and organizational structures in the for and non-profit music industry with a term-long consulting project for an external client. Offered Fall.

**Prerequisite:** MUA 6500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUA 7730 Advanced Diction Cr. 3**

In-depth study of diction for singers. Offered Intermittently.

**Prerequisite:** MUH 5370 with a minimum grade of C and MUH 5380 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**MUA 7800 University Bands Cr. 1**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$30

**Repeatable for 3 Credits**

**MUA 7802 Chamber Winds Cr. 1**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**MUA 7810 University Symphony Orchestra Cr. 1**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$30

**Repeatable for 3 Credits**

**MUA 7820 Jazz Big Band Cr. 1**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$30

**Repeatable for 3 Credits**

**MUA 7822 Jazz Guitar Ensemble Cr. 1**

Large ensemble for jazz guitar majors/principals. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$30

**Repeatable for 2 Credits**

**MUA 7824 Jazztet Cr. 1**

Select ensemble for jazz majors. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$25

**Repeatable for 2 Credits**

**MUA 7826 Jazz Combos Cr. 1**

Small ensemble for jazz majors. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$25

**Repeatable for 2 Credits**

**MUA 7830 Men's Glee Club Cr. 1**

. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$20

**Repeatable for 4 Credits**

**MUA 7840 Choral Union Cr. 1**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$30

**Repeatable for 3 Credits**

**MUA 7850 Concert Chorale Cr. 1**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$30

**Repeatable for 3 Credits**

**MUA 7860 Opera Workshop Cr. 1**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$30

**Repeatable for 4 Credits**

**MUA 7870 Women's Chorale Cr. 1**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**Repeatable for 4 Credits**

**MUA 7880 Chamber Music and Special Ensembles Cr. 1**

All forms including piano and string trios and quartets, and small wind groups. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**Repeatable for 3 Credits**

**MUA 7891 Electronic Music Ensemble Cr. 1**

Learn to play electronic instruments in an ensemble. Current and vintage electronic instruments as well as approved traditional instruments are being used to perform contemporary electronic music repertoire. Offered Fall, Winter.

**Prerequisite:** MUA 6510 with a minimum grade of B or MUA 6530 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUA 7999 Master's Essay Direction Cr. 2**

The master's essay is an individualized course through which graduate students explore a topic in music business or music technology more deeply than through the regular curriculum and, through scholarly research and/or creative activity, produce an original essay that assesses or contributes to the field. Offered Yearly.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**MUA 8999 Master's Thesis Direction Cr. 1-8**

The master's thesis is an individualized course through which graduate students explore a topic in music business or music technology more deeply than through the regular curriculum and, through scholarly research and/or creative activity, produce an original work that contributes to the field. Offered Every Term.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## MUH - Music History

**MUH 1340 Music Appreciation: World Music Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Visual Performing Arts

Introduction to the musical styles of Africa, Asia, South America, and the Middle East. Offered Every Term.

**MUH 1345 Music Cultures Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Visual Performing Arts

Indigenous musics and cultures of Asia, Africa and the Americas; emphasis on features of the musics that have influenced Western art musics. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors; enrollment limited to students in the BA in Fine Arts or Bachelor of Music programs.

**MUH 1350 History of American Popular Music Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry, Visual Performing Arts

History of American popular music from the early nineteenth century to the present. Political, economic, social, and cultural influences on music. Offered Winter.

**MUH 1351 History and Styles of Rock and Roll Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry, Visual Performing Arts

Exploration of American ""mainstream"" and ""subcultural"" popular music; focus on art, technology, business, cultural contexts. Offered Yearly.

**MUH 1360 Women, Music, and Culture: Global, National & Regional Narratives Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

This course explores the importance of narrative perspective, documentation, and publication in shaping cultural beliefs regarding women's musical roles historically and culturally, ultimately reflecting the inherent challenges women have faced in "musical" arenas of diversity, equity, struggles of feminism and musical inclusivity. Offered Every Term.

**MUH 1370 Music Appreciation: Beginnings to the Present Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Visual Performing Arts

Survey of Western music from its beginnings to the present. Developing musical understanding and critical listening skills by focusing on major composers and styles, and by concentrating on social, political and cultural influences. Offered Every Term.

**MUH 2210 African American Music History: A Detroit Perspective Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

A chronological survey of the various genres of music created by African Americans in the United States and a discussion of the contributions of Black Detroit musicians to this history. Offered Intermittently.

**MUH 3310 Music History and Literature I Cr. 3**

Survey of the most important developments in western music history from antiquity to 1700. Concentration on major composers and styles, as well as on significant historical, philosophical, artistic and cultural influences. Offered Fall.

**Prerequisite:** MUT 1160 with a minimum grade of C and MUH 1345 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors; enrollment limited to students in a Bachelor of Arts or Bachelor of Music degrees.

**MUH 3320 Music History and Literature II Cr. 3**

Survey of important developments in western music history from 1700 to 1900. Concentration on major composers and styles, as well as on significant historical, philosophical, artistic and cultural influences. Offered Winter.

**Prerequisite:** MUT 1160 with a minimum grade of C and MUH 1345 with a minimum grade of C

**MUH 3330 Music History and Literature III Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency

Survey of important developments in western music history from 1900 to the present time. Concentration on major composers and styles, as well as on significant historical, philosophical, artistic and cultural influences. Offered Fall.

**Prerequisite:** MUT 1160 with a minimum grade of C and MUH 1345 with a minimum grade of C

**MUH 3360 Jazz History Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

Survey of major developments in jazz from its beginnings to the present. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MUH 3380 American Music Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry

A survey of American music in its many forms. Social, cultural, and philosophical issues are considered alongside the music and its relationship to other arts. Offered Intermittently.

**MUH 3990 Directed Study Cr. 1-3**

Individualized research and work in music history or literature under the supervision of a faculty member. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students with a major, minor, or concentration in Music or Music Honors.

**Repeatable for 6 Credits**

**MUH 4990 BA Project Cr. 2**

Directed study leading to completion of the B.A. project in music. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Music or Music Honors; enrollment limited to students in a Bachelor of Arts degree.

**Equivalent:** MUA 4990, MUT 4990

**MUH 5300 Music Research Cr. 3**

Music bibliography and research techniques. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**MUH 5315 Special Topics in Music History Cr. 3**

In-depth study of such topics as the historical development of opera and oratorio, symphonic or chamber music styles, or specialized study of individual composers. Course may be repeated when topics change. Offered for undergraduate credit only. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**MUH 5340 Survey of World Music Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry

Musical expressions of five or six non-European cultures en route to a better understanding of the peoples themselves. Attention given to biases, culturally-determined learning patterns, and aesthetics. No credit for graduate degrees in music. Offered Fall, Winter.

**MUH 5350 Performance Literature and Pedagogy Cr. 3**

Survey of solo and chamber repertoire from the Renaissance to the present, for students' major performance areas. No credit for graduate degrees in music. Offered Yearly.

**MUH 5360 Jazz History Cr. 3**

Survey of major developments in jazz from its beginnings to the present. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUH 5370 Diction and Song Literature I Cr. 3**

Singers' diction in Italian, Latin, French and Spanish; methodologies, solo and chamber repertoire in these languages. No credit for M.Mus. degree in vocal performance. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Music, Music Honors, Theatre or Theatre Honors.

**MUH 5380 Diction and Song Literature II Cr. 3**

Singers' diction in German, Hebrew, Russian and English; methodologies, solo and chamber repertoire in these languages. No credit for M.Mus. degree in vocal performance. Offered Every Other Year.

**Prerequisite:** MUH 5370 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music, Music Honors, Theatre or Theatre Honors.

**MUH 5993 Writing Intensive Course in Music Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for majors. Offered Fall, Winter.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MUH 6315 Seminar in Music History Cr. 3**

Interdisciplinary seminar, open to non-music majors, examining diverse themes and critical methods in music history and literature. Research projects. Specific focus changes regularly, see Department of Music. No credit for graduate degrees in music. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 15 Credits**

**MUH 7315 Seminar in Music History Cr. 3**

Interdisciplinary seminar for graduate-level music majors examining diverse themes and critical methods in music history and literature. Research projects. Specific focus changes regularly, see Department of Music. Offered Fall, Winter.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Repeatable for 15 Credits**

**MUH 7320 Studies in Renaissance Music Cr. 3**

Fifteenth and sixteenth centuries, from Burgundian School through Palestrina. Special reports; research projects. Offered Every Other Year.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUH 7330 Studies in Baroque Music Cr. 3**

From Monteverdi to 1750. Special reports; research projects. Offered Every Other Year.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUH 7340 Studies in Classical Music Cr. 3**

From 1750 to 1825. Special reports; research projects. Offered Every Other Year.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUH 7350 Studies in Romantic Music Cr. 3**

Nineteenth century. Special reports and research projects. Offered Every Other Year.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUH 7360 Studies in Twentieth Century Music Cr. 3**

Special reports and research projects. Offered Every Other Year.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUH 7370 Studies in Advanced Literature for Conductors Cr. 3**

Literature for various instrumental and choral ensembles from the Renaissance to the present; emphasis on stylistic characteristics, rehearsal techniques, and authenticity of performance. Offered Yearly.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment limited to students in the Master of Music program; enrollment is limited to Graduate level students.

**MUH 7380 Studies in American Music Cr. 3**

An extensive study of American music in its many forms. Social, cultural, and philosophical issues are considered alongside the music and its relationship to other arts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUH 7390 Studies in Jazz History Cr. 3**

Continuation of MUH 5360. Offered Yearly.

**Prerequisite:** MUH 5360 with a minimum grade of C and MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**MUH 7991 Directed Study in Music History Cr. 1-3**

Research investigations in historical musicology. Offered Every Term.

**Prerequisite:** MUH 5300 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**MUH 8999 Master's Thesis Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## MUP - Music Private Instruction

**MUP 1201 Organ: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1202 Organ: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1201 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1203 Organ: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1202 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1204 Organ: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1203 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1205 Organ: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 1211 Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1212 Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1211 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1213 Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1212 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1214 Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1213 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1215 Piano: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 1221 Voice: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1222 Voice: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1221 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1223 Voice: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1222 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1224 Voice: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1223 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1225 Voice: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 1231 Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1232 Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1231 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1233 Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1232 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1234 Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1233 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1235 Strings: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 1241 Woodwinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1242 Woodwinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1241 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**



**MUP 1243 Woodwinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1242 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1244 Woodwinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1243 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1245 Woodwinds: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 1251 Brasswinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1252 Brasswinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1251 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1253 Brasswinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1252 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1254 Brasswinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1253 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1255 Brasswinds: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 1261 Percussion: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1262 Percussion: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1261 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1263 Percussion: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1262 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1264 Percussion: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1263 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1265 Percussion: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 1271 Harp: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1272 Harp: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1271 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1273 Harp: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1272 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1274 Harp: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1273 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1275 Harp: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 1281 Classic Guitar: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1282 Classic Guitar: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1281 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1283 Classic Guitar: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1282 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1284 Classic Guitar: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1283 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1285 Classic Guitar: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 1321 Jazz Piano: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 1322 Jazz Piano: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1321 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)  
**Fees:** \$500  
**Repeatable for 2 Credits**



**MUP 1361 Jazz Percussion: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1362 Jazz Percussion: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1361 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1363 Jazz Percussion: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1362 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1364 Jazz Percussion: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1363 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1365 Jazz Percussion: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 1371 Jazz Guitar: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1372 Jazz Guitar: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1371 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1373 Jazz Guitar: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1372 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1374 Jazz Guitar: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1373 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 1375 Jazz Guitar: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 2201 Organ: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2202 Organ: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2201 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2203 Organ: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2202 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2204 Organ: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2203 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2211 Piano: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2212 Piano: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2211 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2213 Piano: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2212 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2214 Piano: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2213 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2221 Voice: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2222 Voice: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2221 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2223 Voice: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2222 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2224 Voice: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2223 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2231 Strings: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2232 Strings: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2231 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2233 Strings: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2232 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2234 Strings: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2233 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2241 Woodwinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2242 Woodwinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2241 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2243 Woodwinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2242 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2244 Woodwinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2243 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2251 Brasswinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2252 Brasswinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2251 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2253 Brasswinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2252 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2254 Brasswinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2253 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2261 Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2262 Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2261 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2263 Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2262 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2264 Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2263 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2271 Harp: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2272 Harp: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2271 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2273 Harp: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2272 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2274 Harp: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2273 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2281 Classic Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2282 Classic Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2281 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 2283 Classic Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2282 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**



**MUP 2284 Classic Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2283 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 3201 Organ: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1204 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3202 Organ: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3201 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3203 Organ: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3202 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3204 Organ: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3203 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3205 Organ: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3211 Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1214 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3212 Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3211 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3213 Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3212 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3214 Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3213 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3215 Piano: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3221 Voice: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1224 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3222 Voice: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3221 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3223 Voice: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3222 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3224 Voice: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3223 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3225 Voice: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3231 Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1234 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3232 Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3231 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3233 Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3232 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3234 Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3233 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3235 Strings: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3241 Woodwinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1244 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3242 Woodwinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3241 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3243 Woodwinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3242 with a minimum grade of C

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3244 Woodwinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3243 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3245 Woodwinds: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 3251 Brasswinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1254 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3252 Brasswinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3251 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3253 Brasswinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3252 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3254 Brasswinds: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3253 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3255 Brasswinds: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 3261 Percussion: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1264 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3262 Percussion: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3261 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3263 Percussion: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3262 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3264 Percussion: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3263 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3265 Percussion: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 3271 Harp: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1274 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3272 Harp: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3271 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3273 Harp: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3272 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3274 Harp: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3273 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3275 Harp: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 3281 Classic Guitar: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1284 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3282 Classic Guitar: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3281 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3283 Classic Guitar: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3282 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3284 Classic Guitar: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 3283 with a minimum grade of C  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3285 Classic Guitar: Secondary Instruction Cr. 1**  
Offered Fall, Winter.  
**Fees:** \$300  
**Repeatable for 4 Credits**

**MUP 3321 Jazz Piano: Principal Instruction Cr. 1**  
Offered Fall, Winter.  
**Prerequisite:** MUP 1324 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)  
**Fees:** \$500  
**Repeatable for 2 Credits**

**MUP 3322 Jazz Piano: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3321 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3323 Jazz Piano: Principal Instruction Cr. 1**

Advanced private instruction in jazz piano. Offered Fall, Winter.

**Prerequisite:** MUP 3322 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3324 Jazz Piano: Principal Instruction Cr. 1**

Advanced private jazz piano. Offered Fall, Winter.

**Prerequisite:** MUP 3323 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3325 Jazz Piano: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3331 Jazz Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1334 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3332 Jazz Strings: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3331 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3333 Jazz Strings: Major Instruction Cr. 1**

Individual instruction on a jazz string instrument. Offered Fall, Winter.

**Prerequisite:** MUP 3332 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3334 Jazz Strings: Principal Instruction Cr. 1**

Advanced private instruction on a jazz string instrument. Offered Fall, Winter.

**Prerequisite:** MUP 3333 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3335 Jazz Strings: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3341 Jazz Woodwinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1344 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3342 Jazz Woodwinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3341 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3343 Jazz Woodwinds: Principal Instruction Cr. 1**

Individual private instruction on a jazz woodwind instrument. Offered Fall, Winter.

**Prerequisite:** MUP 3342 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3344 Jazz Woodwinds: Principal Instruction Cr. 1**

Individual instruction on a jazz woodwind instrument. Offered Fall, Winter.

**Prerequisite:** MUP 3343 (may be taken concurrently) with a minimum grade of C and (MUA 2820 with a minimum grade of C or MUA 2822 with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3345 Jazz Woodwinds: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3351 Jazz Brasswinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1354 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3352 Jazz Brasswinds: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3351 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3353 Jazz Brasswinds: Principal Instruction Cr. 1**

Individual instruction in a jazz brasswind instrument. Offered Fall, Winter.

**Prerequisite:** MUP 3352 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3354 Jazz Brasswinds: Principal Instruction Cr. 1**

Individual instruction on a jazz brasswind instrument. Offered Fall, Winter.

**Prerequisite:** MUP 3353 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3355 Jazz Brasswinds: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3361 Jazz Percussion: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1364 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3362 Jazz Percussion: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3361 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3363 Jazz Percussion: Principal Instruction Cr. 1**

Individual instruction on jazz percussion. Offered Fall, Winter.

**Prerequisite:** MUP 3362 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3364 Jazz Percussion: Principal Instruction Cr. 1**

Individual instruction on jazz percussion. Offered Fall, Winter.

**Prerequisite:** MUP 3363 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3365 Jazz Percussion: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 3371 Jazz Guitar: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 1374 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3372 Jazz Guitar: Principal Instruction Cr. 1**

Offered Fall, Winter.

**Prerequisite:** MUP 3371 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3373 Jazz Guitar: Principal Instruction Cr. 1**

Advance private instruction on the jazz guitar. Offered Fall, Winter.

**Prerequisite:** MUP 3372 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3374 Jazz Guitar: Principal Instruction Cr. 1**

Individual instruction on the jazz guitar. Offered Fall, Winter.

**Prerequisite:** MUP 3373 with a minimum grade of C and (MUA 2820 (may be taken concurrently) with a minimum grade of C or MUA 2822 (may be taken concurrently) with a minimum grade of C)

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 3375 Jazz Guitar: Secondary Instruction Cr. 1**

Offered Fall, Winter.

**Fees:** \$300

**Repeatable for 4 Credits**

**MUP 4201 Organ: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2204 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4202 Organ: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4201 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4203 Organ: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4202 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4204 Organ: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4203 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4211 Piano: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2214 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**



**MUP 4212 Piano: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4211 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4213 Piano: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4212 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4214 Piano: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4213 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4221 Voice: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2224 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4222 Voice: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4221 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4223 Voice: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4222 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4224 Voice: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4223 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4231 Strings: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2234 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4232 Strings: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4231 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4233 Strings: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4232 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4234 Strings: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4233 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4241 Woodwinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2244 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4242 Woodwinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4241 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4243 Woodwinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4242 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4244 Woodwinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4243 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4251 Brasswinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2254 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4252 Brasswinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4251 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4253 Brasswinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4252 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4254 Brasswinds: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4253 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4261 Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2264 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4262 Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4261 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4263 Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4262 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4264 Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4263 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4271 Harp: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2274 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4272 Harp: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4271 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4273 Harp: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4272 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4274 Harp: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4273 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4281 Classic Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 2284 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4282 Classic Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4281 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4283 Classic Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4282 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4284 Classic Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Prerequisite:** MUP 4283 with a minimum grade of C

**Fees:** \$600

**Repeatable for 6 Credits**

**MUP 4470 Junior Recital Cr. 0**

Required recital for junior-year performance majors; minimum of 30 minutes of music. Registration must be completed before recital is scheduled; pre-recital approval jury is required. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the Bachelor of Music program; enrollment limited to students in the Fine, Performing & Comm. Arts.

**MUP 4480 Senior Recital Cr. 0**

Required recital for senior-year performance or jazz studies majors; minimum of 60 minutes of music. Registration must be completed before recital is scheduled; pre-recital approval jury is required. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the Bachelor of Music program; enrollment limited to students in the Fine, Performing & Comm. Arts.

**MUP 6201 Organ: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**MUP 6202 Organ: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**MUP 6203 Organ: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 6211 Piano: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**MUP 6212 Piano: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**MUP 6213 Piano: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 6221 Voice: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**MUP 6222 Voice: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**MUP 6223 Voice: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 6231 Strings: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**MUP 6232 Strings: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**MUP 6233 Strings: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$500

**Repeatable for 2 Credits**

**MUP 6241 Woodwinds: Principal and Secondary Instruction Cr. 1**

Offered for graduate credit only. Offered Fall, Winter.

**Fees:** \$500







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**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$600

Offered Fall, Winter.

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**Fees:** \$600

Offered Fall, Winter.

**Fees:** \$600

**MUP 7364 Jazz Percussion: Major Instruction Cr. 3**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$600

**MUP 7371 Jazz Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$600

**MUP 7372 Jazz Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$600

**MUP 7373 Jazz Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$600

**MUP 7374 Jazz Guitar: Major Instruction Cr. 3**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**Fees:** \$600

**MUP 8290 Recital Cr. 1**

Degree recital. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

## MUT - Music Theory

**MUT 1100 Introduction to Contemporary Music Theory Cr. 3**

Terminology and standard notation, including intervals, triads, scales, rhythm, correlated ear training, and general musicianship. No degree credit for music majors. Offered Every Term.

**MUT 1140 Theory I Cr. 3**

Prior knowledge of scales, clefs, and key signatures. Triads, intervals, principles of four-part writing, voice leading and melody harmonization, including all diatonic triads, dominant and super tonic seventh chords, inversions, and nonharmonic tones. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**MUT 1150 Ear Training I Cr. 1**

An introduction to sight singing, solfeggio, and the basic materials of tonal music including intervals, chords, simple melodies, and basic harmonic progressions. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**MUT 1160 Theory II Cr. 3**

Further study of diatonic harmony, including idiomatic chord functions and tonal sequences. Offered Winter, Spring/Summer.

**Prerequisite:** MUT 1140 with a minimum grade of C

**MUT 1170 Ear Training II Cr. 1**

A continuation of MUT 1150. Sight-singing and dictation of more advanced diatonic materials. Offered Winter, Spring/Summer.

**Prerequisite:** MUT 1150 with a minimum grade of C

**MUT 1200 Beginning Composition I Cr. 2**

Introduction to creative writing in twentieth and twenty-first century composition. Group composition projects and associated private lessons explore a broad range of contemporary styles and techniques. Topics include melodic studies, process, acoustics, polytonality, free atonality, serialism, timbre, postmodernism. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors. Enrollment is limited to students with a concentration in Composition; enrollment is limited to Undergraduate level students.

**MUT 1210 Beginning Composition II Cr. 2**

Introduction to creative writing in twentieth and twenty-first century composition. Group composition projects and associated private lessons explore a broad range of contemporary styles and techniques. Topics include rhythmic studies, notational exploration, indeterminacy, extended techniques, minimalism, pitch class sets, electronic music. Offered Winter.

**Prerequisite:** MUT 1200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors. Enrollment is limited to students with a concentration in Composition.

**MUT 2030 Keyboard Harmony I Cr. 1**

First of a two-course sequence. Basic training in score reading, such as practice in various clefs and transpositions found in current instrumental writing. No credit after MUT 2040. Offered Every Other Year.

**Prerequisite:** MUA 2795 with a minimum grade of C and MUT 1160 with a minimum grade of C

**MUT 2040 Keyboard Harmony II Cr. 1**

Continuation of MUT 2030. Advanced harmonic progressions applied to the keyboard; figured bass; harmonization of soprano or bass; modulation; transposition, and score reading. Offered Every Other Year.

**Prerequisites:** MUT 2030 with a minimum grade of C

**MUT 2100 Counterpoint Cr. 2**

Overall introduction to counterpoint with some emphasis on the style of J. S. Bach. Offered Fall.

**Prerequisite:** MUT 2140 with a minimum grade of C

**MUT 2120 Jazz Theory and Harmony Cr. 3**

Harmonic, rhythmic and melodic concepts used in jazz including basic chord nomenclature, non-tertian sonorities and advanced improvisation. Offered Winter.

**Prerequisite:** MUT 1160 with a minimum grade of C

**MUT 2140 Theory III Cr. 3**

Study of chromatic harmony and voice leading; introduction to complete tonal structures. Offered Fall.

**Prerequisite:** MUT 1160 with a minimum grade of C

**MUT 2150 Ear Training III Cr. 1**

Sight singing and dictation of chromatic materials; more advanced work with rhythm and meter. Offered Fall.

**Prerequisite:** MUT 1170 with a minimum grade of C

**MUT 2160 Theory IV Cr. 3**

Twentieth- and twenty-first century music; impressionistic techniques. Mainstream compositional devices of melody, harmony and rhythm; serial music, electronic music, aleatoric music, contemporary notation. Offered Winter.

**Prerequisite:** MUT 2140 with a minimum grade of C

**MUT 2170 Ear Training IV Cr. 1**

Sight singing and dictation of more advanced chromatic material; introduction to ear training with post-tonal music. Offered Winter.

**Prerequisite:** MUT 2150 with a minimum grade of C

**MUT 2200 Beginning Composition III Cr. 2**

Students continue to develop compositional skill and technique. Small groups and associated private lessons explore writing for specific instrument families and larger combinations than those explored in the first year. Offered Fall.

**Prerequisite:** MUT 1210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors. Enrollment is limited to students with a concentration in Composition; enrollment is limited to Undergraduate level students.

**MUT 2210 Beginning Composition IV Cr. 2**

Continuation of MUT 2200. Offered Winter.

**Prerequisite:** MUT 2200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors. Enrollment is limited to students with a concentration in Composition; enrollment is limited to Undergraduate level students.

**MUT 2885 Jazz Improvisation I Cr. 1**

Techniques of individual jazz improvisation. Offered Fall.

**Prerequisite:** MUT 1160 with a minimum grade of C and MUT 1170 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors.

**Repeatable for 2 Credits**

**MUT 2887 Jazz Improvisation II Cr. 1**

Continuation of MUT 2885; emphasis on individual jazz improvisation skills. Offered Winter.

**Prerequisite:** MUT 2885 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors; enrollment is limited to Undergraduate level students.

**Repeatable for 2 Credits**

**MUT 3000 Orchestration Cr. 2**

Practical course in arranging music for orchestra, including study of transposition, arrangements from a piano score; general treatment of range, relationship, timbre, balance of orchestral instruments. Offered Fall.

**Prerequisite:** MUT 2160 with a minimum grade of C and MUT 2170 with a minimum grade of C

**MUT 3200 Intermediate Composition I Cr. 2**

Emphasizes refinement and personalization of student compositional activity through private composition lessons. Offered Fall.

**Prerequisites:** MUT 2210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors. Enrollment is limited to students with a concentration in Composition or Jazz Studies; enrollment is limited to Undergraduate level students.

**MUT 3210 Intermediate Composition II Cr. 2**

Continuation of MUT 3200. Offered Winter.

**Prerequisites:** MUT 3200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors. Enrollment is limited to students with a concentration in Composition; enrollment is limited to Undergraduate level students.

**MUT 3990 Directed Study Cr. 1-3**

Individualized research and work in music theory or composition under the supervision of a faculty member. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**Repeatable for 6 Credits**

**MUT 4200 Advanced Composition I Cr. 2**

Creative writing in twentieth- and twenty-first century idioms. Aesthetic, stylistic and formal problems in private composition lessons employing contemporary techniques. Offered Fall.

**Prerequisite:** MUT 3210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors. Enrollment is limited to students with a concentration in Composition; enrollment is limited to Undergraduate level students.

**Repeatable for 4 Credits**

**MUT 4210 Advanced Composition II Cr. 2**

Continuation of MUT 4200. Offered Winter.

**Prerequisites:** MUT 4200 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors. Enrollment is limited to students with a concentration in Composition; enrollment is limited to Undergraduate level students.

**Repeatable for 4 Credits**

**MUT 4990 BA Project Cr. 2**

Directed study leading to completion of the B.A. project in music. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Music or Music Honors; enrollment limited to students in a Bachelor of Arts degree.

**Equivalent:** MUA 4990, MUH 4990

**MUT 5085 History of Theory Cr. 3**

Theoretical writings from Plato to Rameau to Schenker, in historical contexts. Offered for undergraduate credit only. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MUT 5110 Jazz Arranging and Composition I Cr. 3**

Creative writing for small jazz and pop ensembles. Arranging for three to five pieces including "head" arrangements, block chord technique and contrapuntal writing. No credit for M.Mus. in jazz performance degree. Offered Fall.

**Prerequisite:** MUT 2160 with a minimum grade of C and MUT 2170 with a minimum grade of C

**MUT 5120 Jazz Arranging and Composition II Cr. 3**

Creative writing for larger jazz and pop ensembles; jazz arranging for six to eighteen pieces combining various textures and timbres. No credit for M.Mus. in jazz performance degree. Offered Winter.

**Prerequisite:** MUT 5110 with a minimum grade of C

**MUT 5130 Jazz Arranging and Orchestration Cr. 3**

Arranging pieces with concentration on orchestrating for large jazz ensembles. No credit for M.Mus. in jazz performance degree. Offered Fall.

**Prerequisite:** MUT 5120 with a minimum grade of C

**MUT 5200 Special Topics in Theory Cr. 3**

In-depth study of such topics as set or serial theories, aesthetics and philosophies of musics, and recent theoretical developments. Student may repeat course when topic changes. Offered for undergraduate credit only. Offered Intermittently.

**Prerequisite:** MUT 5997 with a minimum grade of C

**Equivalent:** MUT 7200

**Repeatable for 6 Credits**

**MUT 5220 Introduction to Schenkerian Analysis Cr. 3**

Aesthetic premises and basic analytic procedures of tonal music, viewed from a Schenkerian perspective. Applications of graphic technique to short phrases and to larger forms (e.g., sonata) from a wide repertory (1700-1900). Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisite:** MUT 5997 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.



**MUT 5240 Analysis of Twentieth-Century Music Cr. 3**

Aesthetic and technical procedures of twentieth-century music. Applications of pitch-class set and interval analysis to short phrases and to large-scale organizational strategies of entire pieces. Offered for undergraduate credit only. Offered Every Other Year.

**Prerequisite:** MUT 5997 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**MUT 5280 Interactive Electronic Music Composition Cr. 3**

Explores basic interactive electronic music composition using computer music software for sound. Offered Yearly.

**MUT 5997 Analytical Techniques Cr. 3**

Capstone course for Music Department. Structural analysis of tonal music in historical perspective. Credit not applicable to graduate degrees in music. Offered Winter.

**Prerequisite:** MUT 2160 with a minimum grade of C and MUT 2170 with a minimum grade of C and MUH 3330 with a minimum grade of C

**MUT 7020 Seminar in Schenkerian Analysis Cr. 3**

Aesthetic premises and basic analytic procedures of tonal music, viewed from a Schenkerian perspective. Applications of graphic technique to short phrases and to larger forms (e.g., sonata) from a wide repertory (1700-1900). Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUT 7040 Seminar in Twentieth Century Music Cr. 3**

Analysis of twentieth-century music using current applications of post-tonal theories. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUT 7050 Seminar in Music Theory Pedagogy Cr. 3**

Study of materials, teaching techniques, philosophy and organization of music theory classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUT 7070 Advanced Jazz Theory and Analysis Cr. 3**

Analysis and application of advanced harmonic, rhythmic and melodic concepts used in jazz improvisation and composition. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUT 7085 History of Theory Cr. 3**

Theoretical writings from Plato to Rameau to Schenker, in historical contexts. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Music; enrollment is limited to Graduate level students.

**MUT 7100 Graduate Composition Cr. 3**

Advanced creative work in all of the idioms of twenty-first century musical composition. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Music. Enrollment is limited to students with a concentration in Composition/Theory; enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**MUT 7200 Special Topics in Theory Cr. 3**

In-depth study of such topics as set or serial theories, aesthetics and philosophies of musics, and recent theoretical developments. Student may repeat course when topic changes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Music or Music Honors; enrollment is limited to Graduate level students.

**Equivalent:** MUT 5200

**Repeatable for 6 Credits**

**MUT 7992 Directed Study in Theory Cr. 1-3**

Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**MUT 8999 Master's Thesis Direction Cr. 1-8**

Preparation of M.M. thesis project in composition/theory. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment limited to students in the Master of Music program; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Music degree.

**Repeatable for 8 Credits**

## NE - Near Eastern Studies

**NE 1900 Comparative Religion Cr. 3**

Origins of religion: its social importance, its structure (fetish, totemism, myth, ritual). Pre-historic religion and the major religious traditions.

Offered Every Other Year.

**Equivalent:** PHI 1900

**NE 2000 Introduction to Islamic Civilization of the Near East Cr. 3**

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry

The origin of Islam; growth of Islamic thought and institutions; Islamic revival and reform in modern times. Offered Yearly.

**NE 2010 The Bible and Ancient Mythology Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only)

The Bible and Biblical religion in the context of its antecedents in the ancient world. Offered Yearly.

**NE 2030 The Age of Islamic Empires: 600-1600 Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Historical Studies

Historical evolution of the Islamic world from birth of Islam to height of Ottoman Empire. Islamic history and civilization in a world-historical context; developments indigenous to specific regions, such as Islamic Spain. Offered Every Term.

**Equivalent:** HIS 1800

**NE 2040 The Modern Middle East Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry, Historical Studies

Survey of Middle East history in modern era, focusing on the nineteenth and twentieth centuries. Ottoman history from 1600: impact of European imperialism and nationalist movements, resulting in development of modern state systems, regional/national conflicts, and Islamic response to modernization. Offered Every Term.

**Equivalent:** HIS 1810

**NE 2060 Trends and Themes in Films of the Middle East Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

This course focuses on major trends and themes in contemporary films of the Middle East. It presents the directors, writers, actors, cinematographers, editors, and composers in representative fictional dramas both serious and comedic based on societal issues of the region while, at the same time, touching upon universal messages. The course is taught in English; films have English subtitles. Offered Every Term.

**NE 2170 Islamic and Near Eastern Philosophy Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry  
An examination of major figures and movements in Islamic and Near Eastern philosophy. Offered Every Other Year.

**Equivalent:** PHI 2170

**NE 2700 Topics in Middle Eastern Studies Cr. 1-8**

Specialized topics related to the Middle East: language, literature, etc. Offered Intermittently.

**Repeatable for 8 Credits**

**NE 3010 Jewish History from the Bible to Present Cr. 3**

This course will survey the 3000-year history of the Jews from biblical antiquity to the present. The course will explore a wide variety of topics, but will focus around three central themes: the emergence of Judaism and the Jewish life in the diaspora out of the religious and social matrix of ancient Israelite society, in response to the challenges of Hellenistic culture; the disparities between Jewish life under Christianity and Islam; and the challenges of being Jewish in the modern world. Throughout the course, the dual emphasis will be placed on the broader context in which Jews lived as an ethnic and religious minority — the Ancient Near East, the Hellenistic world, the Roman Empire, Christendom, Islam, Europe, Russia, America, and the modern Middle East — and the internal development of Judaism and the Jewish community in these diverse situations. Offered Intermittently.

**Equivalent:** HIS 3010

**NE 3040 Twentieth Century Middle East Cr. 3**

The contemporary Middle East; emphasis on social and economic development. Investigation of issues that identify the region, such as oil, gender issues, fundamentalism, and regional conflicts. Offered Every Term.

**Equivalent:** HIS 3320

**NE 3061 Oral History in Middle Eastern Tradition Cr. 3**

Methodologies, techniques and applications of oral history used as tools to investigate modern social history of Middle Eastern societies. Offered Every Other Year.

**Equivalent:** ANT 3061

**NE 3225 Modern Israeli Culture: A Pluralistic Perspective Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Minorities in Israel; the Kibbutz; women in public life; the Arab in Israeli literature; the press; education; technology; archaeology; music and dance. Taught in English. Offered Every Term.

**NE 3550 Arab Society in Transition Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry  
Distinctive social and cultural institutions and processes of change in the Arab Middle East. Regional variations: background and discussion of current political and economic systems and their relations to international systems. Offered Intermittently.

**Equivalent:** ANT 3550

**NE 3990 Directed Study Cr. 1-3**

Readings; consultations and reports. Offered Every Term.

**Repeatable for 9 Credits**

**NE 5000 Globalization, Social History and Gender in the Arabian Gulf Cr. 3**

Social history of the Arabian Gulf (especially Bahrain, Qatar, and the UAE) in the age of globalization. Contemporary history with special emphasis on gender relations as an index of current social developments in the region. Offered Every Other Year.

**Equivalent:** HIS 5960

**NE 5100 Teaching of Arabic as a Foreign/Second Language (TAFL) Cr. 3**

Theoretical and conceptual framework of second language learning. Proper training in pedagogy as related to learning Arabic as a foreign/second language. Offered Yearly.

**Equivalent:** ARB 5100

**NE 5110 History and Development of Islamic Political Thought Cr. 3**

Historical analysis of political Islam through study of the precepts and historical vicissitudes impacting the Islamic world from within and from external forces. Offered Intermittently.

**Prerequisites:** NE 2030 with a minimum grade of D- and NE 3040 with a minimum grade of D-

**Equivalent:** PS 5760

**NE 5210 Arabic Sociolinguistics Cr. 3**

Arabic dialectology; Arabic as a minority language in contact. Theories and techniques developed outside Arabic, and their applicability to Arabic situations. Offered Fall.

**Equivalent:** ARB 5210, LIN 5210

**NE 5220 Muslim Personal Law Cr. 3**

Study of Muslim family law, with attention to the status of women and children in the law. Areas include: betrothal, marital contracts, forms of marital dissolution, laws of inheritance, and child custody. Focus on classical interpretation of the law, and its application in modern times. Offered Intermittently.

**NE 5230 Structure of Arabic Cr. 3**

Survey of historical constitution and theoretical structure of Arabic. Offered Yearly.

**Equivalent:** ARB 5230, LIN 5230

**NE 5300 Quran: History and Interpretation Cr. 3**

Traditional and revisionist narratives of the canonization of the Quran; textual features of the Quran; history of quranic hermeneutics and exegesis Offered Yearly.

**NE 5700 Topics in Middle Eastern Studies Cr. 1-4**

Special topics in Middle Eastern politics, language, and literature. Offered Yearly.

**Repeatable for 8 Credits**

**NE 5710 Islam and the Challenge of Modernity Cr. 3**

Influence of Enlightenment values and colonial institutions on the social, political, and ideological structures of the Islamic World. Offered Every Other Year.

**NE 5990 Directed Study Cr. 1-3**

Offered Every Term.

**Repeatable for 9 Credits**

**NE 5993 Writing Intensive Course in Near Eastern and Asian Studies Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a designated corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Every Term.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**NE 5999 Internship in Near Eastern Studies Cr. 3**

Internship in a public or private organization related to Near Eastern studies. Offered for undergraduate credit only. Offered Every Term.

**NE 6031 Methodologies and Research in Oral History: Near Eastern and Asian Societies Cr. 3**

Techniques, methodologies and legalities of studying and interpreting alternative data for historical research. Social and cultural sensitivities of Near Eastern and Asian societies and the gathering of historical information through oral research. Offered for graduate credit only. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **NE 6500 Religion and Society Cr. 3**

Role of religion in societies from ancient to contemporary times. Religion as related to science, violence, patriarchy, feminism, art, government, ethics, and issues of religious pluralism. Offered Every Other Year.

### **NE 7100 Islam and the West Cr. 3**

Areas covered include: emergence of Muslim political power in seventh century Middle East; Iberian Peninsula and religious pluralism; Crusades and their impact on religion and society in Middle East; colonialism and transfer of Enlightenment values to Islamic world; Muslim migration to Europe and America. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **NE 7300 Qur'an: History and Interpretation Cr. 3**

Traditional and revisionist narratives of the canonization of the Qu'ran; textual features of the Qu'ran; history of qur'anic hermeneutics and exegesis Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **NE 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

### **NE 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## **NEN - Nanoengineering**

### **NEN 5000 Introduction to Nanotechnology and Nanomedicine Cr. 4**

Basic understanding of nanomaterials synthesis, characterization, manufacturing methods, and their biomedical applications. Offered Winter.

**Prerequisites:** BE 1300 with a minimum grade of D- or BE 1310 with a minimum grade of D-

### **NEN 5100 Nanoengineering Lab Cr. 2**

Hands-on experience in the synthesis and characterization of nanomaterials, as well as device fabrication and biomedical applications. Offered Winter.

**Corequisite:** NEN 5000

**Fees:** \$100

### **NEN 5200 Scale-down Engineering - from Engineered Systems to Nanotechnology Cr. 4**

Basic understanding of scale-down engineering in a wide range of systems including sensors, drug delivery, manufacturing, electromagnetic materials, and imaging. Offered Fall.

**Prerequisites:** (BE 1300 or BE 1310) and NEN 5000

### **NEN 5300 Nanoengineering Research and Capstone Design Cr. 4**

Formulation and solution of open-ended research problems related to nanomaterials and nanotechnology using current methods, tools and principles of nano-engineering. Offered Winter.

**Prerequisites:** NEN 5000 with a minimum grade of D-, NEN 5100 with a minimum grade of D-, and NEN 5200 with a minimum grade of D-

### **NEN 5400 Nanoengineering Seminar Cr. 1**

State-of-the-art research in nanotechnology by attending seminars given by nationally and internationally prominent. Offered Fall, Winter.

**Prerequisites:** BE 1300 with a minimum grade of D- or BE 1310 with a minimum grade of D-

## **NEU - Neuroscience**

### **NEU 4050 Science Advocacy and Public Engagement Cr. 2**

This course will provide students with the opportunity to understand diverse types of science media as well as best practices and strategies for interacting with different kinds of audiences. Offered Fall.

**Prerequisites:** BIO 2550 with a minimum grade of C-, BIO 2600 with a minimum grade of C-, or COM 3150 with a minimum grade of C-

**Equivalent:** BIO 4050

### **NEU 4200 Neurobiology of Addiction Cr. 3**

An in-depth examination of the neurobiology of addiction in the context of psychopharmacology. Emphasis is on neurochemical and neuropharmacological aspects of drug and related addictions, using molecular, cellular, and clinical approaches. Offered Fall.

**Prerequisites:** BIO 3200 with a minimum grade of C-, PSY 3120 with a minimum grade of C-, or PSY 3300 with a minimum grade of C-

### **NEU 4795 Special Topics in Behavioral and Cognitive Neuroscience Cr. 3**

This is an undergraduate seminar course that is designed to be a participatory exploration with a faculty expert on an advanced, emergent, and/or stimulating topic within Neuroscience. This course will provide students with a detailed understanding of contemporary research topics in the broad interdisciplinary field of Behavioral and Cognitive Neuroscience, encompassing behavioral, clinical, cognitive, developmental, and systems neuroscience. Offered Intermittently.

**Prerequisites:** PSY 3330 with a minimum grade of C- or PSY 3120 with a minimum grade of C-

**Repeatable for 9 Credits**

### **NEU 4895 Special Topics in Cellular and Molecular Neuroscience Cr. 3**

This is an undergraduate course that is designed to be a participatory exploration with a faculty expert on an advanced, emergent, and/or stimulating topic within Neuroscience. This course will provide students with a detailed understanding of contemporary research topics in the broad interdisciplinary field of Cellular and Molecular Neuroscience. Offered Intermittently.

**Prerequisites:** BIO 3200 with a minimum grade of C-

**Repeatable for 9 Credits**

### **NEU 4990 Introduction to Research Practice Cr. 1**

This seminar is an introduction to laboratory safety, research practice and scientific integrity for undergraduate students engaged in independent research. It will be a co-requisite that each student must take with their first enrollment in a NEU directed study course. The course is structured to provide instruction in basic laboratory safety and accepted standards for research conduct. It will also provide professional development and networking opportunities for students interested in careers in research and the biomedical sciences. Instruction will be provided in the form of reading assignments, discussions, lectures and case studies. Offered Fall, Winter.

### **NEU 4991 Undergraduate Research in Neuroscience Cr. 1**

Laboratory or academic research performed under the mentorship of a faculty member. Offered Every Term.

**Prerequisites:** NEU 4990 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 5 Credits**

### **NEU 4992 Undergraduate Research in Neuroscience Cr. 2**

Laboratory or academic research performed under the mentorship of a faculty member. Offered Every Term.

**Prerequisites:** NEU 4990 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 6 Credits**

**NEU 4993 Undergraduate Research in Neuroscience Cr. 3**

Laboratory or academic research performed under the mentorship of a faculty member. Offered Every Term.

**Prerequisites:** NEU 4990 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 6 Credits**

**NEU 4994 Undergraduate Research in Neuroscience Cr. 4**

Laboratory or academic research performed under the mentorship of a faculty member. Offered Every Term.

**Prerequisites:** NEU 4990 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 8 Credits**

**NEU 5470 Preclinical and Clinical Assessments of Neurologic Disease I Cr. 3**

An exploration of central and peripheral nervous system diseases from four perspectives: 1) broad disease connections 2) disease mechanisms 3) preclinical animal models 4) clinical trials and outcomes. Diseases covered are from mature research fields, with known molecular mechanisms, animal models and disease-modifying therapies in clinical trials. Students will master communication and teaching skills using: short presentations to the class, active participation in class discussions and peer-performance assessments. Students will research and present material, coordinate information between student groups, and moderate class discussions. Offered Fall.

**Prerequisites:** (BIO 3200 with a minimum grade of C- and 1 of (STA 1020 with a minimum grade of C-, STA 2210 with a minimum grade of C-, or PSY 2030 with a minimum grade of C-))

**NEU 6470 Preclinical and Clinical Assessments of Neurologic Disease II Cr. 3**

A continuation of NEU 5470 focusing on diseases from maturing research fields, where disease etiology may be ambiguous for many patients, and there may be relatively few molecular mechanisms, animal models and therapeutics available. Students will gain an appreciation of how translational research develops from pre-clinical models to clinical trials and practice. Offered Winter.

**Prerequisites:** NEU 5470 with a minimum grade of C-

**NEU 6990 Honors Introduction to Research Practice Cr. 1**

This seminar is an introduction to laboratory safety, research practice and scientific integrity for undergraduate students engaged in independent research. It will be a co-requisite that each student must take with their first enrollment in a NEU Honors directed study course. The course is structured to provide instruction in basic laboratory safety and accepted standards for research conduct. It will also provide professional development and networking opportunities for students interested in careers in research and the biomedical sciences. Instruction will be provided in the form of reading assignments, discussions, lectures and case studies. Offered Fall, Winter.

**NEU 6992 Honors Undergraduate Research in Neuroscience Cr. 2**

Laboratory or academic research performed under the mentorship of a faculty member. Offered Every Term.

**Prerequisites:** NEU 6990 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 6 Credits**

**NEU 6993 Honors Undergraduate Research in Neuroscience Cr. 3**

Laboratory or academic research performed under the mentorship of a faculty member. Offered Every Term.

**Prerequisites:** NEU 6990 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 6 Credits**

**NEU 6994 Honors Undergraduate Research in Neuroscience Cr. 4**

Laboratory or academic research performed under the mentorship of a faculty member. Offered Every Term.

**Prerequisites:** NEU 6990 with a minimum grade of C- (may be taken concurrently)

**Repeatable for 8 Credits**

**NEU 6998 Honors Thesis in Neuroscience Cr. 3**

Original laboratory or academic research performed under the guidance of a faculty member for the purpose of completing an Honor's thesis required for the completion of an Honors Degree. Offered Every Term.

**Prerequisites:** NEU 6990 with a minimum grade of C- (may be taken concurrently)

## NFS - Nutrition and Food Science

**NFS 2030 Nutrition and Health Cr. 3**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry

Food as a carrier of nutrients; food availability; nutrient utilization including digestion, metabolism and excretion. Patterns of food consumption based on biological, psychological and social needs; and anthropological findings. Offered Every Term.

**NFS 2130 Introductory Food Science Cr. 3**

Chemical, physical and biological properties of foods which affect their keeping quality, nutritional and organoleptic values. For students interested in the scientific study of foods. Offered Every Term.

**NFS 2140 Introductory Food Science Laboratory Cr. 1**

Experimental study of principles discussed in NFS 2130. For students interested in the scientific study of food. Offered Every Term.

**Fees:** \$90

**NFS 2220 Nutrition Laboratory Cr. 1**

Laboratory course for introductory nutrition. Meets General Education Laboratory requirement. Offered Every Term.

**Prerequisites:** NFS 2030 with a minimum grade of C- (may be taken concurrently) or NFS 3230 with a minimum grade of C- (may be taken concurrently)

**Fees:** \$90

**NFS 3230 Human Nutrition Cr. 3-4**

Principles of the science of nutrition. Emphasis on physiological requirements as well as biochemical and metabolic processes of nutrients for human growth, development and maintenance within the life cycle. Honors students participate in additional reading, discussion and presentations. Offered Every Term.

**Prerequisites:** NFS 2030 with a minimum grade of C-

**NFS 3270 Eating Disorders Cr. 3**

Causes and treatments of anorexia nervosa, bulimia nervosa, binge eating, and overeating, from biological, psychological, and social perspectives. Offered Winter.

**Prerequisite:** PSY 1010 with a minimum grade of C- or PSY 1020 with a minimum grade of C-

**NFS 3300 Science, History, and Culture of Italian Cuisine Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Global Learning Inquiry

Explores the science, history, and culture of Italian food and the Mediterranean Diet, and how Italian food culture has evolved throughout the centuries. Taught in English. Offered Yearly.

**Fees:** \$15

**Equivalent:** ITA 3300



**NFS 4150 Advanced Food Science Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
NFS 4150 is a senior level undergraduate course that builds on undergraduate coursework in Food Science, Introductory Chemistry, Biology, and Microbiology. The course includes lecture and lab. The lecture covers major principles in food science, such as chemical ingredients and microbiological concerns of food, food processing and preservation, food product development, and sensory evaluation. Lab sessions provide hands-on experience on chemical and microbial analysis of food and enhance understanding of major issues associated with the overall food quality and safety. Students will also complete a lab report to fulfill their Writing Intensive (WI) requirement. Offered Winter.  
**Prerequisite:** NFS 2130 with a minimum grade of C-  
**Fees:** \$90

**NFS 4160 Food Laws and Regulations Cr. 3**

State, federal and international food law; interpretations of regulatory food standards and determination of conformity of food products to them. Methods of food inspection. Role of the food law in assuring food safety, wholesomeness and nutritional quality. Offered Every Term.  
**Prerequisite:** NFS 3230 with a minimum grade of C-

**NFS 4230 Macronutrient Metabolism Cr. 3**

Focus on normal human nutrition and physiological functions. Biochemical properties of macronutrients and their interrelationships at the cellular and subcellular level. Offered Fall.  
**Prerequisites:** NFS 2130 with a minimum grade of C-, NFS 3230 with a minimum grade of C-, and CHM 1240 with a minimum grade of D  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**NFS 4231 Human Nutrition: Micronutrients Cr. 3**

Principles of micronutrient metabolism, including function, toxicity, and deficiency; principles and techniques for assessing micronutrient status. Micronutrients in the physiopathology of chronic disease; sources of micronutrients and factors affecting nutrient bioavailability. Impact of disease and/or genetics on nutrient function and nutrient requirement; role of fortification, enrichment, and/or supplementation of micronutrients in the food supply and on health outcomes. Offered Winter.  
**Prerequisites:** NFS 2130 with a minimum grade of C-, NFS 3230 with a minimum grade of C-, and CHM 1240 with a minimum grade of D

**NFS 4990 Directed Study Cr. 1-4**

Offered Every Term.

**Repeatable for 4 Credits****NFS 5100 Nutrition Care Process I Cr. 2**

Introduction to management of nutrition care in both healthy and ill people throughout the life span using the Nutrition Care Process model, developed by the Academy of Nutrition and Dietetics. Emphasis is on the Registered Dietitian's role in the four steps of the process, nutrition assessment, diagnosis, intervention, and monitoring and evaluation. The process covers identification of nutrition-related problems in patients, planning intervention to solve their nutrition problems and reduce nutrition-related health risks associated with chronic disease. Offered Yearly.  
**Prerequisites:** NFS 2130, NFS 2140, NFS 2030, and NFS 3230  
**Corequisite:** NFS 5510  
**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 5120 Nutrition Care Process II Cr. 2**

Builds on Nutrition Care Process I (NFS 5100). Emphasis is on the RD's role in treating patients with nutrition-related problems by means of planning intervention to assist individuals in meeting nutritional needs and decrease nutrition-related health risks associated with chronic disease. Specific content on medical nutrition therapy includes interpretation of biochemical parameters related to specific disease states (e.g. glucose, lipids, therapeutic diets, drug-nutrient interactions, and diet instruction. Offered Yearly.  
**Prerequisites:** NFS 5100  
**Corequisite:** NFS 5520  
**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 5130 Food Chemistry Cr. 3**

Study of the chemical constituents of foods, their relationship to the biological and physical properties, and overall food quality. Offered Fall, Winter.  
**Prerequisites:** CHM 2220 with a minimum grade of C- (must be taken at WSU) and NFS 2130 with a minimum grade of C-

**NFS 5140 Laboratory Techniques in Nutrition and Food Science Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Basic modern and classical analytical techniques and instruments in nutrition and food science. Background theory to principles of instrumental assays. Procedures for evaluation of macro and micro food components analysis. Physiological functions relevant to nutrition. Offered Fall.  
**Prerequisites:** CHM 2220 with a minimum grade of D, NFS 2130 with a minimum grade of C-, and NFS 2220 with a minimum grade of C-  
**Fees:** \$90

**NFS 5145 Fundamentals of Fermentation Cr. 3**

The role of the microbiome (commensal bacteria) in human health has enjoyed a surge in interest and diet is recognized as one of the most impactful factors influencing the gut microbiome. We are just beginning to understand the impact of specific food constituents, their preparation, processing, and preservation, on gut microbiome and health. This course will introduce the theoretical and practical aspects of fermentation of food products as a means for altering the nutritional and sensory states, preservation, and the potential impacts on human health. Offered Yearly.  
**Prerequisite:** NFS 4150 with a minimum grade of C- or NFS 5140 with a minimum grade of C-

**NFS 5150 Food Safety Assurance Cr. 4**

This is a senior level undergraduate course that provides students in-depth knowledge and practices of food safety management. Topics include GMP (Good Manufacturing Procedures), SSOP (Sanitation Standard Operation Procedures), HACCP, Preventive Controls for Human Food, and Foreign Supplier Verification Program, and PCQI (Preventive control Qualified Individual). Upon successful completion of this course students could earn two certificates: PCQI (for human food) certification by the FSPCA and HACCP certification accredited by the International HACCP alliance. Offered Yearly.  
**Prerequisites:** NFS 2130 with a minimum grade of C-, NFS 2140 with a minimum grade of C-, BIO 2200 with a minimum grade of C-, or CHM 1100 with a minimum grade of C-

**NFS 5170 Nutrition, Physical Activity, and the Brain Cr. 3**

Neurobehavioral responses and adaptations to dietary constituents and physical activity/inactivity. Offered Fall.  
**Prerequisite:** NFS 3230 with a minimum grade of C- or BIO 3200 with a minimum grade of C- or PSY 3330 with a minimum grade of C-

**NFS 5200 Advanced Dietetics Cr. 3**

Development and refinement of dietetic practitioner skills through application in critical care and specialty practice areas such as nutrition support, renal, oncology, pulmonary, stress and trauma. Offered Fall.

**Prerequisites:** NFS 5100, NFS 5120, and NFS 5250

**Corequisite:** NFS 5530

**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**Fees:** \$90

**NFS 5220 Community Nutrition Cr. 2**

Introduction to management of nutritional care in healthy and at-risk persons throughout the lifespan. Identifying problems and planning interventions to meet population nutritional problems and to reduce nutrition-related health risks in community settings. Community assessment; organization and function of community agencies; interventions appropriate to small and large groups, including nutrition education. Offered Fall, Spring/Summer.

**Prerequisite:** NFS 2130 with a minimum grade of C- and NFS 2140 with a minimum grade of C- and NFS 3230 with a minimum grade of C-

**NFS 5240 Nutritional Epidemiology Cr. 3**

The purpose of this class is for the students to gain an in-depth Understanding of the relationships between diet, health and diseases: to gain an appreciation for the statistical processes involved in nutritional epidemiologic studies and to examine objectively the collection and use of the nutritional information used in epidemiologic studies. Offered Fall.

**Prerequisite:** NFS 3230 with a minimum grade of C- or PH 3300 with a minimum grade of C-

**NFS 5250 Nutrition and Disease Cr. 4**

Application of the principles of biochemistry and physiology in the study of nutrient metabolism as altered by disease. The physio-biochemical basis for diet in the treatment of disease. Offered Winter, Spring/Summer.

**Prerequisites:** NFS 4230 with a minimum grade of C- and NFS 4231 with a minimum grade of C-

**NFS 5350 Organization and Management of Food Service Systems Cr. 4**

Survey of food service systems; factors affecting their successful operation. Components of quality assurance supporting well-being of target markets. Identification of operative management skills. Offered Fall.

**Prerequisite:** NFS 2130 with a minimum grade of C- and NFS 2140 with a minimum grade of C- and NFS 3230 with a minimum grade of C- and MGT 2530 with a minimum grade of C-

**NFS 5360 Management of Nutritional Care and Services Cr. 3**

Application of management theory and principles in the three areas of dietetic practice; career planning and professional role development. Offered Winter.

**Prerequisites:** NFS 5200

**Corequisite:** NFS 5540

**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 5510 Supervised Practice I Cr. 1**

Supervised practice is in clinical (acute care), long-term care, food service, community, and an elective setting. Students may be placed in various SP experiences in any for the NFS 5500-5530 courses; each course is not a specific type of SP. Placements will be based on site availability. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 5520 Supervised Practice II Cr. 1**

Supervised practice is in clinical (acute care), long-term care, food service, community, and an elective setting. Students may be placed in various SP experiences in any for the NFS 5500-5530 courses; each course is not a specific type of SP. Placements will be based on site availability. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 5530 Supervised Practice III Cr. 1**

Supervised practice is in clinical (acute care), long-term care, food service, community, and an elective setting. Students may be placed in various SP experiences in any for the NFS 5510-5530 courses; each course is not a specific type of SP. Placements will be based on site availability. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 5540 Supervised Practice IV Cr. 1**

Supervised practice is in clinical (acute care), long-term care, food service, community, and an elective setting. Students may be placed in various SP experiences in any for the NFS 5500-5530 courses; each course is not a specific type of SP. Placements will be based on site availability. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 5990 Honors Directed Study Cr. 1-4**

Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Nutrition and Food Science Hon; enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**NFS 5992 Supervised Field Experience Cr. 2-4**

Supervised field experience designed to correlate classroom theory with practical work. Offered Every Term.

**NFS 5996 Research in Food Science and Nutrition Cr. 1-4**

Research projects under direction of faculty active in research. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Unranked Undergrad, Freshman, Sophomore, Junior or Senior; enrollment is limited to Undergraduate level students.

**Repeatable for 6 Credits**

**NFS 6000 Nutritional Biochemistry Cr. 3**

Biochemical effects of nutrients at cellular and organ levels. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 6020 Nutrient and Gene Interaction Cr. 3**

Introduction to molecular genetics concepts, terminology and molecular methodologies, with emphasis on nutrition and food science. Overview of nutrition and gene interaction in onset and progression of disease, cancer, and aging. Offered for graduate credit only. Offered Every Other Year.

**Prerequisites:** NFS 5130 with a minimum grade of C-, NFS 5140 with a minimum grade of C-, and NFS 5230 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 6030 Microbiological Safety of Foods Cr. 3**

Food-borne microorganisms as causes of human illnesses, including bacteria, mold, viruses and parasites. Microbial toxins and their mode of action. Antimicrobial agents in food. Means of prevention and protection. Offered Fall.

**Prerequisites:** NFS 4150 with a minimum grade of C- and NFS 5130 with a minimum grade of C-

**NFS 6150 Functional Foods for Health Cr. 3**

Introduction to functional foods (those with specific health benefits) and nutraceuticals, as well as a variety of functional food ingredients and extracts, their chemical and potential health promoting properties, processing, production, safety and regulation. Offered Winter.

**Prerequisite:** NFS 2030 with a minimum grade of D- and NFS 2130 with a minimum grade of D- and NFS 3230 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 6210 Nutrition through the Life Cycle Cr. 3**

Biological growth and nutritional requirements from fetal stages of development through aging. Nutritional standards in light of current epidemiological data and scientific research. Offered for graduate credit only. Offered Intermittently.

**Prerequisites:** NFS 5230 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 6230 Nutrition and Physical Performance Cr. 3**

How nutrients affect physical fitness and physical performance; how physical performance can be improved by adopting optimal dietary practice and how exercise and optimal nutrition can prevent human diseases. Offered Fall.

**Prerequisite:** NFS 3230 with a minimum grade of C-

**NFS 6270 Eating Behavior and Body Weight Regulation Cr. 3**

Central and peripheral regulation of food intake, normal and abnormal eating behavior, physiological and psychological regulation of body weight, different models of obesity, etiology of treatment of obesity. Offered Winter.

**Prerequisite:** BIO 2870 with a minimum grade of C-

**NFS 6850 Controversial Issues Cr. 2**

Topics to be announced in Schedule of Classes. Offered Fall.

**Prerequisite:** NFS 3230 with a minimum grade of C

**NFS 6860 Controversial Issues in Clinical Nutrition and Dietetics Cr. 2**

Current controversial topics; differing points of view will be debated; discussion of modes of communication of nutrition information. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 7000 Nutritional Metabolomics and Bioinformatics Cr. 3**

Introduction to and application of the "omics" technologies to nutrition: genomics, proteomics, and metabolomics. Examples and exercises using bioinformatic software for multivariate data analyses. Offered Winter.

**Prerequisite:** NFS 6000 with a minimum grade of C- and STA 1020 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$90

**Equivalent:** PSL 7180

**NFS 7060 Research Problems in Nutrition and Food Science Cr. 2**

Research orientation: acquaintance with published data, principles of design, methods of collecting data, and basic statistical analysis. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 7140 Advanced Laboratory Techniques in Nutrition and Food Science Cr. 4**

Laboratory techniques in nutrition and food science research, including: animal experimentation, isotope use and quantitation, radioimmunoassay and receptor assays, atomic absorption; chromatography; microbial assays. Offered Yearly.

**Prerequisite:** (BMB 5010 with a minimum grade of C- or CHM 5600 with a minimum grade of C-) and NFS 5140 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$90

**NFS 7170 Nutrition, Physical Activity, and the Brain Cr. 3**

Neurobehavioral responses and adaptations to dietary constituents and physical activity/inactivity. Offered Fall.

**Prerequisite:** NFS 6000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 7230 Nutrition and Physical Performance Cr. 3**

How nutrients affect physical fitness and physical performance; how physical performance can be improved by adopting optimal dietary practice and how exercise and optimal nutrition can prevent human diseases. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 7240 Nutritional Epidemiology Cr. 3**

Introduction to epidemiology concepts and terminology. Emphasis on examining the associations between nutrition and chronic disease. Offered Intermittently.

**Prerequisites:** NFS 2210 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 7800 Master's Capstone Seminar in Dietetics Cr. 3**

The capstone is designed for the dietetics student to demonstrate the foundational knowledge acquired in the didactic coursework, as well as the practical skills, problem-solving and critical thinking gained during the supervised practice rotations of the Coordinated Program in Dietetics. It include intensive writing through an original clinical case study, food service case study, community planning presentation, a cumulative examination, and national registration examination review modules. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Dietetics; enrollment is limited to Graduate level students.

**NFS 7850 Graduate Seminar Cr. 1**

Presentations by graduate students, graduate faculty, and visiting scientists. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 7990 Directed Study Cr. 1-4**

Offered for each area of specialization. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**NFS 7991 Lab Rotation Cr. 1**

For new graduate students; students spend at least two weeks in all research labs. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 7996 Research Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 20 Credits**

**NFS 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**NFS 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**NFS 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**NFS 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** NFS 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** NFS 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** NFS 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**NFS 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## NUR - Nursing

**NUR 2010 Health Assessment Cr. 3**

This course provides foundational learning experiences for understanding and performing the health assessment of the individual. Students learn health assessment skills including systematic history taking and physical examination. Holistic health assessment is viewed from health promotion, cultural, nutritional, mental health, and developmental perspectives. Developmental stages of the adult and older adults are explored within a family and environmental context. Students are introduced to the assessment approaches of a variety of theorists. Students utilize critical reasoning and begin to apply the nursing process in determining nursing diagnoses with a focus on assessment. Offered Fall, Spring/Summer.

**Prerequisites:** BIO 2870 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**Fees:** \$25

**NUR 2030 Pathophysiology in Nursing Cr. 3**

This course examines alterations in normal physiological functioning that occur because of a disease process. An understanding of the functional basis for a disease will enable the student nurse to critically examine and understand clinical manifestations of diseases and pathophysiologic processes. Offered Fall, Winter.

**Prerequisites:** BIO 2870 with a minimum grade of C

**NUR 2050 Fundamentals of Nursing Care Cr. 5**

This course provides the student with an opportunity to provide fundamental nursing care for individuals within the context of the family and community. Student will develop basic nursing skills in a clinical practice setting while utilizing critical thinking and the nursing process. Students will explore the influence of culture and therapeutic communication with the patient and their families. Offered Fall, Winter.

**Prerequisites:** NUR 2010 with a minimum grade of C, NUR 2030 with a minimum grade of C, and NUR 2060 with a minimum grade of C

**Corequisite:** NUR 2995

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**Fees:** \$85

**NUR 2060 Pharmacology in Nursing Cr. 3**

This course is designed to provide the student with the basic concepts of pharmacology. Individual drug responses related to human physiological processes, are examined. Students explore the roles and responsibilities of the nurse for safe, legal, ethical, and therapeutic drug therapy. Stages of growth and development are examined throughout the course and steps of the nursing process regarding drug therapy are emphasized. Offered Fall, Spring/Summer.

**Prerequisite:** BIO 2870 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**NUR 2070 Professional Nursing in the Future: Strategies for Health Promotion Cr. 3**

Preparation for professional practice; emphasis on developing knowledge and skills for health promotion within the context of groups and the community. Impact of nursing theories and research on practice, directed toward health promotion issues. Strategies for health promotion; focus on group process and teaching/learning. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the College of Nursing.

**NUR 2995 Foundations of Professional Nursing Practice Cr. 3**

This course explores the foundation of professional nursing practice such as nursing science, clinical practice and regulation of nursing practice. Students will explore the historical development of nursing as a profession, including the science of nursing (nursing theory) and the non-nursing theories that are foundational to nursing practice. Students will begin developing critical clinical thinking and communication skills necessary for clinical reasoning and judgement as a professional nurse across multiple health care settings. The course will also discuss health promotion concepts and health determinates as it relates to various populations. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**NUR 3010 Comprehensive Nursing Care of the Adult I Cr. 5**

This course focuses on the nursing perspective of the physiologic universal needs of the human, specifically focusing on basic needs (e.g., cardiac, respiratory, digestive and elimination disorders). The course is designed to assist students in providing safe, holistic care to adults and elderly experiencing acute and chronic health disruptions. Emphasis is on students' synthesis and application of knowledge from multiple disciplines, and their use of the nursing process to develop a comprehensive, evidence-based plan of nursing care for patients across various healthcare settings. Offered Fall, Winter.

**Prerequisites:** NUR 2050 with a minimum grade of C and ((BIO 2270 with a minimum grade of C and BIO 2271 with a minimum grade of C) or BIO 2200 with a minimum grade of C)

**Fees:** \$50

**NUR 3015 Psychiatric Mental Health Nursing Cr. 5**

This course prepares student nurses to provide mental health care to individuals and populations in acute, primary and community settings. Social determinants and developmental aspects of mental health across the lifespan are explored. This course also discusses other determinants of mental health/illness and prevention strategies. Emphasis is on students' synthesis and application of knowledge from multiple disciplines, and their use of the nursing process to develop a holistic mental health care plan. Offered Fall, Winter.

**Prerequisite:** NUR 2050 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**Fees:** \$50



**NUR 3020 Comprehensive Nursing Care of the Adult II Cr. 5**

This course focuses on the nursing perspective of the physiologic universal needs of the human, specifically focusing on complex processes (e.g., neurological, sensory, and endocrine disorders). The course is designed to assist students in providing safe, holistic care to adults and elderly experiencing acute and chronic health disruptions. Emphasis is on students' synthesis and application of knowledge from multiple disciplines, and their use of the nursing process to develop a comprehensive, evidence-based plan of nursing care for patients across various healthcare settings. Offered Winter, Spring/Summer.

**Prerequisite:** NUR 3010 with a minimum grade of C

**Fees:** \$50

**NUR 3200 Global Healthcare Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry

Explores health care challenges worldwide while examining intercultural beliefs systems. Examines issues related to health disparities among vulnerable populations in urban environments nationally and globally. Students will travel abroad during spring break to experience first-hand the healthcare issues and disparities internationally. Students must have valid passports and pay the Office of Study Abroad required travel fees prior to course start date. Offered Winter.

**NUR 3405 Introduction to Research and Evidence-Based Practice Cr. 3**

Provides basic information about nursing research problems; principles of evidence-based nursing research, access and retrieval of research literature and databases; reading and critiquing research reports; ethical issues related to research; and individual strategies and organizational mechanisms to promote research-based practice. The research process is examined as a foundation for critical thinking and scholarship. Offered Fall, Winter.

**Prerequisites:** ENG 3010 with a minimum grade of C or ENG 3020 with a minimum grade of C

**NUR 4010 Integrative Care of Children and Their Families Cr. 5**

This course is designed to prepare students to provide nursing care to children in various states of health within the context of their families. Nursing care will be emphasized from a primary and acute care perspective with the goal of health promotion. By applying knowledge of age-appropriate growth and development, students will implement nursing practices with children of all ages and their families. Students will examine how pediatric development includes biological, physical, psychosocial, cognitive, moral, spiritual, and social determinants. Offered Winter, Spring/Summer.

**Prerequisites:** NUR 3010 with a minimum grade of C and NUR 3015 with a minimum grade of C

**Fees:** \$50

**NUR 4020 Integrative Care of the Perinatal Family Cr. 5**

This course focuses on care of the perinatal family including the woman, fetus, newborn, and other family members during the period from pre-conception to postpartum. Women's health topics including health promotion and primary care throughout the lifespan are included. The course emphasizes effective communication, genetics and genomics, health and risk assessment, and supportive and restorative care of the woman and family. Ethical, cultural, societal, and consumer movement effects on women's health and perinatal care form an integral part of the learning experience. Offered Fall, Winter.

**Prerequisites:** NUR 2050 with a minimum grade of C

**Fees:** \$50

**NUR 4040 Leadership and Management in Nursing Cr. 4**

Students develop leadership skills necessary to become nurse leaders and managers in complex and diverse healthcare settings. Current theories of management, leadership and change are examined and related to nursing practice. Students develop self-awareness, critical thinking, decision-making, ethics, legal and professional regulations, time management, change, team building, communication, safety, quality, and functions of management. Principles of evidence-based practice (EBP) are applied to the nursing process in addressing clinical problems and needs from a nursing leadership role. Offered Fall, Spring/Summer.

**Prerequisites:** NUR 2995 with a minimum grade of C, NUR 2050 with a minimum grade of C, and NUR 3405 with a minimum grade of C

**NUR 4044 Leadership and Management in Nursing Cr. 3**

This course focuses on assisting students to develop leadership skills necessary to become a nurse leader and manager in complex and diverse healthcare settings. Current theories of management, leadership and change are examined and related to nursing practice within the institution. An emphasis is placed on developing self-awareness, critical thinking, decision-making, ethics, legal and professional regulations, time management, change, team building, communication, safety, quality and functions of management. Offered Fall, Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**NUR 4050 Theory of Caring for Complex, Critically Ill Patients Cr. 3**

In this course, students are given the opportunity to integrate knowledge of anatomy, physiology, pathophysiology, and pharmacology in the care of patients with complex acute illnesses. The course fosters the advancement of critical reasoning, clinical knowledge, and clinical judgment through case studies, lecture, and group discussions. Offered Fall, Winter.

**Prerequisites:** NUR 3020 with a minimum grade of C

**Fees:** \$50

**NUR 4060 Transition of Nursing Knowledge into Practice Cr. 5**

In this course, students transition to nursing practice. The course integrates the knowledge of ethics, standards, and expectations of professional nursing roles with an emphasis on critical thinking. The student will practice skills and develop behaviors for entry into the profession of nursing while synthesizing their nursing knowledge in a precepted clinical environment. Offered Fall, Winter.

**Prerequisites:** NUR 3020 with a minimum grade of C, NUR 4010 with a minimum grade of C, and NUR 4020 with a minimum grade of C

**Corequisite:** NUR 4050

**Fees:** \$50

**NUR 4120 Community/Public Health Nursing: Care of Populations Cr. 5**

In this course, students apply nursing science to communities and populations in interprofessional and collaborative community settings. The students explore and evaluate current and historical population-level interventions and policies, as they apply to health equity and health promotion. Students assess resources for diverse populations and use information technology in the care of populations. Students examine their commitment to lifelong learning and professional growth for nursing excellence. The nursing process at the population level is demonstrated with diverse communities, and vulnerable population groups, families, and individuals. Students explore all levels of prevention to address a wide variety of challenges and health disparities in urban environments. Offered Fall, Winter.

**Prerequisites:** NUR 2050 with a minimum grade of C, NUR 2995 with a minimum grade of C, and NUR 3405 with a minimum grade of C

**NUR 4135 Capstone Project RN-BSN Cr. 3**

This practicum course will build on the concepts and knowledge gained from the student's professional experiences as well as previous nursing courses and use them to build an evidence-based capstone. The course will allow for the application of theories and concepts associated with population health, nursing leadership, and nursing research. Offered Fall.

**Prerequisites:** NUR 4120 with a minimum grade of C and NUR 4040 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**NUR 4300 Nursing Informatics Cr. 3**

This course introduces students to the specialty of nursing informatics. Emphasis is on theories and models that explain how information is gathered and used in healthcare. Different software programs used for professional and personal healthcare records are discussed. Ethical issues in use of electronic healthcare records and social media use are addressed. Students will also demonstrate competency in examining information technologies needed for a professional career. Offered Fall, Spring/Summer.

**NUR 4320 Public/Community Health Nursing Cr. 3**

This course prepares the student to apply nursing science to communities and populations in interprofessional and collaborative community settings. The student explores and evaluates current and historical population-level interventions and policies, as they apply to population-health equity and health promotion. The student assesses resources for diverse populations, as well as uses information and communication technology in the care of communities and populations. Students are given the opportunity to examine their commitment to lifelong learning and professional growth for nursing excellence. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**NUR 4400 Disaster Preparedness Cr. 3**

This course is an introduction of emergency planning and disaster management for interprofessional teams at the local, state, national and global levels. Various types of public health and environmental disasters including natural, biological, chemical, radiological, nuclear and other human caused disasters will be explored. Consequences of the event, and roles of public health agencies in preparedness, response, and recovery are outlined to improve population health outcomes following a disaster or public health emergency. The student will apply these concepts to real-world disasters to identify, evaluate and synthesize the public health response, and form recommendations. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**NUR 4505 Professional Nursing in the Future: Current Issues for Professional Practice RN-BSN Cr. 3**

The course provides students the opportunity to describe, examine, and discuss issues related to professional nursing practice (RN to BSN). The current professional practice of nurses transitioning to a BSN encompasses a role change and exposure to the political process (micro to national issues), bioethical issues in U.S. health care, educational pathways in nursing and related policy implications, the importance of interprofessional education for nurses, and the various levels of legal responsibility for the practicing professional nurses. These discussions will assist the new graduate in becoming an informed and politically active professional, an ethically sound provider and consumer of health care services, as well as an informed citizen capable of providing leadership to those who are not health care professionals. Offered Fall.

**NUR 4600 Gerontological Nursing Perspectives in Health and Illness Cr. 3**

Knowledge from the fields of gerontology and geriatrics used to enhance the student's nursing perspective when providing nursing care to meet the complex health care needs of healthy and frail older adults and their families. As students learn about the physical and psychosocial problems encountered with aging, they will be engaged in discussions about the contributions that can be brought forth from nursing and multiple disciplines to enhance the health of older adults. Offered Winter.

**NUR 4650 Complimentary and Integrative Medicine Cr. 3**

This course will introduce the philosophical, theoretical, physiological, and cultural foundation of Complementary and Integrative Medicine (CIM). The student will be introduced to a wide range of complementary and integrative medicine therapies. This course will also introduce how to evaluate the safety and efficacy of CIM therapies, for the treatment of human response, based on the evidence. The student will then employ beginner level integration CIM therapies into their current practice. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**NUR 4800 Transcultural Health Through the Life Cycle Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Transcultural health differences and similarities in selected Western and non-Western cultures, from birth through old age. Use of theories and research methods from the health and social sciences and humanities in study and analysis of different cultures. Offered Fall, Winter.

**NUR 4990 Directed Study Cr. 1-4**

Independent study between faculty and students. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**Repeatable for 6 Credits**

**NUR 4995 Writing for the Health Care Professional Cr. 3**

Building on students' earlier course work, this course prepares students to utilize a variety of professional writing styles including writing for publication; clinical policies, guidelines, and procedures; and poster development. The ability to communicate effectively in the written form is an essential skill for the health care professional. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Nursing.

**NUR 6510 Health Economics, Policy, and Professional Issues for APNs Cr. 3**

Examination of the major health policy and professional issues relevant to the advanced-practice nurse. Students will be assisted in the synthesis of theoretical and pragmatic aspects of issues of concern in order to develop confidence in their skills and establish an APN practice. Offered for graduate credit only. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7000 Statistics in Nursing Cr. 3**

Introduction to statistical analysis in nursing research. Topics include: levels of measurement, statistical inference, selected descriptive and inferential statistics for parametric and nonparametric conditions, and selected statistics used to summarize results from multiple studies (i.e., meta-analytic statistics). Offered Fall.

**Prerequisite:** NUR 3400 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7030 Advanced Nursing Assessment Cr. 4**

Development of advanced physical psychosocial assessment skills. Development of critical thinking skills in relation to differential diagnosis (medical and nursing) that are required in the performance of advanced nursing practice. Offered Spring/Summer.

**Prerequisite:** PTH 7500 with a minimum grade of C and NUR 7555 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$100

**NUR 7035 Family Centered Health Promotion and Risk-reduction Cr. 3**

The purpose of this course is to facilitate student's understanding and application of family systems approach to the theoretical foundation for health promotion and risk reduction across the lifespan. The emphasis is on family theory, health promotion theories and research to promote and preserve wellness lifestyles in client populations using epidemiological principles, disease risk appraisal and reduction and other tools. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7065 Program Planning, Quality Improvement and Evaluation Residency Cr. 5**

Focuses on the development of knowledge, skills and leadership strategies essential for advanced public health nurses to transform complex systems, and to improve the health of communities and diverse populations. The course emphasizes the application of concepts and theories germane to planning, improving, and evaluating health programs to advance public health, and enhance quality of life. Offered Fall.

**Prerequisites:** NUR 7025 with a minimum grade of B, NUR 7040 with a minimum grade of B, and NUR 7055 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7105 Theoretical Foundations for Nursing Cr. 3**

Theory course: foundations for nurses in practice and leadership roles. Discussion of diverse perspectives that influence knowledge development in nursing, including, systems, communication, developmental, health promotion, stress and coping theories. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7115 Special Topics: Interprofessional Education Cr. 2**

This interprofessional course is for health professional student learners in the areas of advanced practice. The course allows health professional students to learn about, from and with each other, how each discipline contributes to the healthcare team, the importance of effective communication, the role of team collaboration and preparing health care professionals for collaborative practice with a focus on clinical decision making in interdisciplinary teams. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate, Medical or Professional level students.

**Equivalent:** MD4 8115, PAS 7115, PPR 7115, SW 7115

**NUR 7200 Advanced Neonatal Pharmacology Cr. 3**

Basic concepts of pharmacology; application and integration of content to advanced practice nursing with high-risk neonate. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7207 Advanced Pediatric Pharmacology Cr. 3**

Preparation of advanced practice nurses to apply concepts of pediatric pharmacology when assessing, managing and treating the pediatric patient in a variety of environments, including acute/critical and primary care. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7222 Leadership in Health Policy, Ethics and Change Cr. 3**

Examines health systems and health policy within evolving sociopolitical contexts from a national and international perspective. Content includes human diversity, social issues, systems theory, health systems analysis, ethics, health policy analysis, and policy formulation. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7225 Pathophysiology, Clinical Care and Management I Cr. 8**

Managing health care needs of women, neonates, and/or children; conceptual basis for advanced nursing. Offered Fall.

**Prerequisite:** NUR 2010 with a minimum grade of B and NUR 3400 with a minimum grade of B and NUR 7030 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7370 APN: Management of Neurological, Endocrine, and Musculoskeletal Problems Cr. 6**

Assisting advanced practice nurses in development of clinical expertise required to co-manage persons with problems related to neurology, endocrinology, and musculoskeletal disorders. Offered Winter.

**Prerequisite:** NUR 7030 with a minimum grade of B and NUR 7555 with a minimum grade of C and PTH 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7415 Physical and Psychosocial Issues in Aging Cr. 3**

This course prepares the student to analyze the predominant physical and psychosocial aspects of aging encountered by older adult clients. The course also prepares students to understand the interdisciplinary functioning of the gerontological specialist (nurse practitioner, case manager, social worker, etc.). Normal age-related changes and an interdisciplinary approach to adaptive responses are emphasized. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Adult Gero Nur Prac - Acute, Adult Gero Nur Prac - Primary or Gerontology; enrollment is limited to Graduate level students.

**NUR 7425 Advanced Public Health Nursing: Community Based Participatory Research - Didactic Cr. 2**

This course explores common issues and methods involved in conducting community based participatory research (CBPR). Students engage in building the necessary skills and support for community based participatory work for change. Offered Fall.

**Prerequisites:** NUR 7222 with a minimum grade of B-, NUR 7105 with a minimum grade of B-, and NUR 8895 with a minimum grade of B-

**Corequisite:** NUR 7426

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7426 Advanced Public Health Nursing: Community Based Participatory Research - Clinical Cr. 1**

This course explores common issues and methods involved in conducting community based participatory research (CBPR). Students learn how to collaborate across interdisciplinary perspectives to engage in research that leads to community change, the improvement of public health, and enhances the quality of life. Offered Fall.

**Prerequisites:** NUR 7222 with a minimum grade of B-, NUR 7105 with a minimum grade of B-, and NUR 8895 with a minimum grade of B-

**Corequisite:** NUR 7425

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7427 Adult-Gerontology ACNP: Management of Neurological, Endocrine & Musculoskeletal Problems - Didactic Cr. 2**

This didactic course is meant to develop clinical expertise to manage patient populations across the entire spectrum of adults, including young adults, adults, and older adults. The AG-ACNP scope of practice encompasses the provision of care to patients who are characterized as "physiologically unstable, technologically dependent and/or highly vulnerable to complications." The emphasis is on patients challenged with neurological, endocrine, and musculo-skeletal problems across the continuum of care from wellness to illness, with differing and unique developmental needs. Offered Fall.

**Corequisite:** NUR 7428

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7428 Adult-Gerontology ACNP: Management of Neurological, Endocrine & Musculoskeletal Problems - Clinical Cr. 4**

This clinical course is meant to develop clinical expertise to manage patient populations across the entire spectrum of adults, including young adults, adults, and older adults. The AG-ACNP scope of practice encompasses the provision of care to patients who are characterized as "physiologically unstable, technologically dependent and/or highly vulnerable to complications." This course emphasis is on patients challenged with neurological, endocrine, and musculo-skeletal problems across the continuum of care from wellness to illness, with differing and unique developmental needs. Offered Fall.

**Corequisite:** NUR 7427

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7435 Advanced Public Health Nursing: Comprehensive Community Assessment - Didactic Cr. 2**

This course provides opportunities for students to develop knowledge and skills essential to conducting comprehensive community assessments. Offered Winter.

**Prerequisites:** NUR 7425 with a minimum grade of B, NUR 7426 with a minimum grade of B, NUR 7000 with a minimum grade of B-, and NUR 8625 with a minimum grade of B-

**Corequisite:** NUR 7436

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7436 Advanced Public Health Nursing: Comprehensive Community Assessment - Clinical Cr. 3**

This course provides opportunities for students to engage with interprofessional team members, community agencies, and diverse populations to conduct a comprehensive assessment. Offered Winter.

**Prerequisites:** NUR 7425 with a minimum grade of B, NUR 7426 with a minimum grade of B, NUR 7000 with a minimum grade of B-, and NUR 8625 with a minimum grade of B-

**Corequisite:** NUR 7435

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7437 Adult-Gerontology Acute Care NP: Management of Cardiopulmonary and Renal Problems - Didactic Cr. 2**

This clinical course is meant to develop clinical expertise to manage patient populations across the entire spectrum of adults, including young adults, adults, and older adults. The AG-ACNP scope of practice encompasses the provision of care to patients who are characterized as "physiologically unstable, technologically dependent and/or highly vulnerable to complications." with illness trajectories related to pulmonary, cardiovascular and renal systems across the continuum of care from wellness to illness, with differing and unique developmental needs. In addition, common problems in acute care such as, pain, infections and discharge barriers are also addressed. Emphasis is placed on use of strong differential diagnoses skills, interpretation of normal and abnormal physical assessment and diagnostic test results, clinical decision making, family-patient-nurse psychosocial interactions, and other evidence-based interventions. Offered Winter.

**Prerequisites:** NUR 7370 with a minimum grade of B

**Corequisite:** NUR 7438

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7438 Adult-Gerontology Acute Care NP: Management of Cardiopulmonary and Renal Problems - Clinical Cr. 4**

This clinical course is meant to develop clinical expertise to manage patient populations across the entire spectrum of adults, including young adults, adults, and older adults. The AG-ACNP scope of practice encompasses the provision of care to patients who are characterized as "physiologically unstable, technologically dependent and/or highly vulnerable to complications." with illness trajectories related to pulmonary, cardiovascular and renal systems across the continuum of care from wellness to illness, with differing and unique developmental needs. In addition, common problems in acute care such as, pain, infections and discharge barriers are also addressed. Emphasis is placed on use of strong differential diagnoses skills, interpretation of normal and abnormal physical assessment and diagnostic test results, clinical decision making, family-patient-nurse psychosocial interactions, and other evidence-based interventions. Offered Winter.

**Prerequisites:** NUR 7370 with a minimum grade of B

**Corequisite:** NUR 7437

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7444 Advanced Physiology and Pathophysiology Across the Lifespan for APRNs Cr. 4**

General physiology and pathologic principles for promoting health and treating disease across the lifespan. This course builds upon previous courses in anatomy and physiology and is a core competency that provides the basis for critical thinking in the role as an advanced practice nurse. Further, it provides an in-depth study of principles of advanced physiology and pathophysiology applicable across the lifespan, including enhancement of knowledge of human physiology of organ systems as well as the etiology, developmental considerations, pathogenesis, morphology, and clinical manifestations of common disease processes. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7445 Advanced Public Health Nursing: Health Promotion and Prevention with Diverse Populations - Didactic Cr. 2**

The course focuses on the development of advanced public health nursing knowledge and collaborative practice skills essential to integrating theoretical frameworks. Offered Spring/Summer.

**Prerequisites:** NUR 7435 with a minimum grade of B and NUR 7436 with a minimum grade of B

**Corequisite:** NUR 7446

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7446 Advanced Public Health Nursing: Health Promotion and Prevention with Diverse Populations - Clinical Cr. 3**

The course focuses on the development of advanced public health nursing knowledge and collaborative practice skills essential to integrating comprehensive community assessments and diverse perspectives when designing and implementing health promotion and prevention programs. Offered Spring/Summer.

**Prerequisites:** NUR 7435 with a minimum grade of B and NUR 7436 with a minimum grade of B

**Corequisite:** NUR 7445

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.



**NUR 7447 AG-ACNP: Management of Patients with Oncology, Hematology, Mental Health & Life Changes - Didactic Cr. 2**

This didactic course prepares the APN student to synthesize the experience of providing care to manage patient populations across the entire spectrum of adults, including young adults, adults, and older adults. The AG-ACNP scope of practice encompasses the provision of care to patients who are characterized as “physiologically unstable, technologically dependent and/or highly vulnerable to complications.” This course emphasis is on patients challenged with oncological, hematological, mental health and life style changes across the continuum of care from wellness to illness, with differing and unique developmental needs. In addition, common problems and skills required in acute care such as, pharmacologic and non-pharmacologic management strategies to ameliorate physical and behavioral symptoms are also addressed. Offered Spring/Summer.

**Corequisite:** NUR 7448

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7448 AG-ACNP: Management of Patients with Oncology, Hematology, Mental Health & Life Changes - Clinical Cr. 4**

This clinical course prepares the APN student to synthesize the experience of providing care to manage patient populations across the entire spectrum of adults, including young adults, adults, and older adults. The AG-ACNP scope of practice encompasses the provision of care to patients who are characterized as “physiologically unstable, technologically dependent and/or highly vulnerable to complications.” This course emphasis is on patients challenged with oncological, hematological, mental health and life style changes across the continuum of care from wellness to illness, with differing and unique developmental needs. In addition, common problems and skills required in acute care such as, pharmacologic and non-pharmacologic management strategies to ameliorate physical and behavioral symptoms are also addressed. Offered Spring/Summer.

**Corequisite:** NUR 7447

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7455 Adv Public Health Nursing: Program Planning, Quality Improvement and Evaluation Residency - Didactic Cr. 2**

This residency course focuses on the development of knowledge, skills and leadership strategies essential for advanced public health nurses to transform complex systems, and to improve the health of communities and diverse populations. Offered Fall.

**Prerequisites:** NUR 7445 with a minimum grade of B and NUR 7446 with a minimum grade of B

**Corequisite:** NUR 7456

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7456 Adv Public Health Nursing: Program Planning, Quality Improvement and Evaluation Residency - Clinical Cr. 3**

This residency course focuses on the development of knowledge, skills that emphasizes the application of concepts and theories germane to planning, improving, and evaluating health programs to advance public health, and enhance quality of life. Offered Fall.

**Prerequisites:** NUR 7445 with a minimum grade of B and NUR 7446 with a minimum grade of B

**Corequisite:** NUR 7455

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7460 Family Psychiatric Mental Health NP: Adv Practice Nursing with Individuals and Communities -Didactic Cr. 3**

This didactic course is designed to give Family Psychiatric Mental Health Nurse Practitioner students opportunities to integrate content about individuals and communities within cultural contexts. Advanced theoretical knowledge and critical thinking skills in relation to the nursing process will be demonstrated. Concepts of individual and community interventions will be applied in a wide range of service environments. Evidence based practice will be highlighted. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7444 with a minimum grade of B-, NUR 7615 with a minimum grade of B-, NUR 7625 with a minimum grade of B-, and NUR 7650 with a minimum grade of B-  
**Corequisite:** NUR 7465

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7465 Family Psychiatric Mental Health NP: Adv Practice Nursing with Individuals and Communities -Clinical Cr. 5**

This clinical course is designed to give Family Psychiatric Mental Health Nurse Practitioner students opportunities to integrate content about individuals and communities within cultural contexts. Advanced theoretical knowledge and critical thinking skills in relation to the nursing process will be demonstrated. Concepts of individual and community interventions will be applied in a wide range of service environments. Evidence based practice will be highlighted. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7444 with a minimum grade of B-, NUR 7615 with a minimum grade of B-, NUR 7625 with a minimum grade of B-, and NUR 7650 with a minimum grade of B-  
**Corequisite:** NUR 7460

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7470 Family Psychiatric Mental Health Nurse Practitioner: Advanced Practice Nursing with Groups -Didactic Cr. 3**

This didactic course provides the student with advanced knowledge to use group psychotherapy to intervene clients experiencing dysfunctional interpersonal patterns. The clinical portion of this course assists students to develop group therapy clinical skills to treat with clients across the lifespan experiencing acute and chronic psychiatric disorders and mental health issues. Emphasis is on utilization of theoretical and conceptual models for assessing, planning, treating and evaluating dysfunctional patterns in groups, including promotion, maintenance, and restoration of mental health in age-appropriate groups. Additionally, promoting and maintaining effective communication patterns in a variety of groups is addressed. Offered Winter.

**Prerequisites:** (NUR 7460 with a minimum grade of B and NUR 7465 with a minimum grade of B) or NUR 7885 with a minimum grade of B  
**Corequisite:** NUR 7475

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7475 Family Psychiatric Mental Health Nurse Practitioner: Advanced Practice Nursing With Groups -Clinical Cr. 5**

This clinical course provides the student with advanced knowledge to use group psychotherapy to intervene clients experiencing dysfunctional interpersonal patterns. The clinical portion of this course assists students to develop group therapy clinical skills to treat with clients across the lifespan experiencing acute and chronic psychiatric disorders and mental health issues. Emphasis is on utilization of theoretical and conceptual models for assessing, planning, treating and evaluating dysfunctional patterns in groups, including promotion, maintenance, and restoration of mental health in age-appropriate groups. Additionally, promoting and maintaining effective communication patterns in a variety of groups is addressed. Offered Winter.

**Prerequisites:** (NUR 7460 with a minimum grade of B and NUR 7465 with a minimum grade of B) or NUR 7885 with a minimum grade of B

**Corequisite:** NUR 7470

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7480 Family Psychiatric Mental Health NP: Advanced Practice Nursing with Families - Didactic Cr. 3**

This didactic course provides the student with the advanced knowledge base and clinical skills necessary to use family therapy to intervene with clients experiencing dysfunctional intrafamily patterns. Emphasis is placed on utilization of family theoretical and conceptual models for assessing, planning, and treating dysfunctional patterns and for assessing, promoting, maintaining, and restoring mental health to families and individuals. The impact of political, legal, economic, social, cultural, and technological factors on families, and the mental health care system are also addressed. Offered Spring/Summer.

**Prerequisites:** NUR 7470 with a minimum grade of B and NUR 7475 with a minimum grade of B

**Corequisite:** NUR 7485

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7485 Family Psychiatric Mental Health NP: Advanced Practice Nursing with Families - Clinical Cr. 5**

This clinical course provides the student with the advanced knowledge base and clinical skills necessary to use family therapy to intervene with clients experiencing dysfunctional intrafamily patterns. Emphasis is placed on utilization of family theoretical and conceptual models for assessing, planning, and treating dysfunctional patterns and for assessing, promoting, maintaining, and restoring mental health to families and individuals. The impact of political, legal, economic, social, cultural, and technological factors on families, and the mental health care system are also addressed. Offered Spring/Summer.

**Prerequisites:** NUR 7470 with a minimum grade of B and NUR 7475 with a minimum grade of B

**Corequisite:** NUR 7480

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7555 Pharmacotherapeutics for Advanced Practice Nurse Cr. 3**

This is a foundational course for the Advanced Practice Nurse programs that addresses, across-the-lifespan, fundamental principles of pharmacodynamics and pharmacokinetic in major drug classes and the organ systems they impact. Students will develop the necessary foundational knowledge to prescribe appropriate medications for major disease and illnesses in a safe and evidence-based manner. Students should have previously completed an undergraduate pharmacology course such as NUR 2060. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Nursing Practice, MS in Nursing or PhD in Nursing programs.

**NUR 7605 Psychopharmacology for Advanced Practice Nursing Cr. 5**

Focus on pharmacokinetics and pharmacodynamics of psychotropic and neurologic medications used across the life span. Emphasis on efficacy of the medications, individualized selections, and titration of dosages. Offered Fall.

**Prerequisites:** NUR 7555 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7615 Psychopathology and Therapeutic Frameworks Across the Lifespan for PMHNP Cr. 2**

This course provides an overview of psychopathology and common theoretical frameworks utilized in the treatment of psychiatric disorders. Emphasis will be placed on contemporary therapeutic frameworks, theoretical models and selected current research pertinent to psychopathology across the lifespan. The professional, ethical, and cultural issues related to psychopathology and its treatment will also be discussed. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**NUR 7625 Psychopharmacology Cr. 2**

The course will focus on pharmacokinetics and pharmacodynamics of psychotropic and neurologic medications used across the life span. Emphasis will be on the neuroscience and neurobiology of pharmacological treatments, safety and efficacy of medications, selection of individualized plans, and titration of dosages. Offered Winter.

**Prerequisite:** NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 7555

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**NUR 7650 Advanced Psychiatric Assessment and Diagnostic Reasoning Cr. 1**

This course provides students with a knowledge base in mental health assessment of clients across the life span within the context of the advanced psychiatric mental health nursing role. Emphasis is on the acquisition and analysis of relevant data for the development of a comprehensive and holistic mental health assessment and subsequent diagnoses. Focus is on history taking, analysis, data categories, and specific techniques used to identify mental health problems and differential diagnoses in clients across the life span. Offered Spring/Summer.

**Prerequisite:** NUR 7444 with a minimum grade of B- and NUR 7555 with a minimum grade of B- and NUR 7615 with a minimum grade of B- and NUR 7625 with a minimum grade of B-

**Corequisite:** NUR 7030

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 2 Credits**

**NUR 7670 Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management I - Didactic Cr. 4**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs of the infant, children, and adolescent while providing the conceptual basis for advanced nursing. Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, prescription of therapeutic management/interventions, and outcomes assessment. Health promotion/wellness models, bio-psychosocial and cultural theories are integrated throughout the course. Nurse practitioner management models of care are used in the provision of care to clients. Emphasis is placed on the knowledge necessary to care for infants, children, and adolescents from a variety of cultural, ethnic and racial backgrounds. The specialty seminar component focuses on beginning application of the specialty knowledge of the infant, child, and adolescent health within a broad social context. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7207 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-  
**Corequisite:** NUR 7675

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7675 Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management I - Clinical Cr. 4**

This clinical course focuses on the application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on incorporating and using diagnostic reasoning, roles of advanced practice nurses, and interventions to promote and/or restore health within this specialty area. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7207 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-  
**Corequisite:** NUR 7670

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7680 Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management II - Didactic Cr. 3**

This course is designed to provide the student with the opportunity to further develop and demonstrate use of a model of advanced practice nursing. The specialty seminar focuses on strengthening and further development of the application of the specialty knowledge of children's health within a broad social context. Students manage the care of children while assessing for deviations from normal, which may result in collaboration or referral. Development of the advanced practice role, provision of a supportive clinical practice environment, and examination of factors that contribute to the vulnerability of children are included. Offered Winter.

**Prerequisites:** (NUR 7670 with a minimum grade of B and NUR 7675 with a minimum grade of B) or NUR 7225 with a minimum grade of B  
**Corequisite:** NUR 7685

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7685 Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management II - Clinical Cr. 5**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on strengthening and further development of the nurse practitioner management model, roles of advanced practice nurses and interventions to promote and/or restore health within this specialty area. Offered Winter.

**Prerequisites:** (NUR 7670 with a minimum grade of B and NUR 7675 with a minimum grade of B) or NUR 7225 with a minimum grade of B  
**Corequisite:** NUR 7680

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7690 Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management III -Didactic Cr. 2**

This course is designed to provide the student with opportunities to further develop and demonstrate the use of a model of advanced practice nursing. The specialty seminar aims to strengthen and further develop the application of specialty knowledge of infant, child, and adolescent health within a broad social context. Students manage the care of infants, children, and adolescents while assessing for deviations from normal, which may result in collaboration or referral. Development of the advanced practice role, provision of a supportive clinical practice environment, and examination of factors that contribute to the vulnerability of infants, children, and adolescents are included. Offered Spring/Summer.

**Prerequisites:** NUR 7680 with a minimum grade of B and NUR 7685 with a minimum grade of B

**Corequisite:** NUR 7695

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7695 Pediatric Nurse Practitioner Primary Care: Pathophysiology, Clinical Care & Management III -Clinical Cr. 6**

This clinical course component focuses on the continued application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on the strengthening and further development of the nurse practitioner management model, roles of advanced practice nurses, and interventions to promote and/ or restore health within this specialty area. Offered Spring/Summer.

**Prerequisites:** NUR 7680 with a minimum grade of B and NUR 7685 with a minimum grade of B

**Corequisite:** NUR 7690

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7710 Theoretical Perspectives of Teaching in Nursing Cr. 3**

Theories of learning and teaching, critical thinking, value development, and psychomotor skill development as basis for teaching in nursing. Teaching methods in nursing for classroom and clinical practice. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7720 Evaluation and Testing in Nursing Education Cr. 3**

Development of educational program in nursing. Test construction, clinical and performance evaluation, and grading. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7730 Practice Teaching in Nursing Cr. 3**

Application experience in educational setting appropriate to student's needs and goals. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 7840 Advanced Practice Nursing with Individuals/Communities Cr. 6**

Opportunities for psychiatric nursing and community health nursing advanced practice students to integrate content about individuals and communities within cultural contexts. Offered Fall.

**Prerequisite:** NUR 7030 with a minimum grade of B and NUR 7555 with a minimum grade of C and PTH 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7855 Advanced Practice Nursing with Groups Cr. 6**

Opportunities for psychiatric nursing and community health nursing advanced practice students to integrate content about groups within cultural contexts. Offered Winter.

**Prerequisite:** NUR 7030 with a minimum grade of B and NUR 7555 with a minimum grade of C and PTH 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7860 Advanced Practice Nursing with Families Cr. 6**

Opportunities for advanced practice psychiatric nursing and advanced practice community health nursing students to integrate content about families within cultural contexts. Offered Spring/Summer.

**Prerequisite:** NUR 7030 with a minimum grade of B and NUR 7555 with a minimum grade of C and PTH 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7865 Foundations of Complementary and Alternative Medicine (CAM) Cr. 3**

Philosophical, historical, physiological basis of CAM; use in advanced practice nursing. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7885 Advanced Practice Nursing with Individuals/Communities for the Family Psychiatric Mental Health NP Cr. 8**

This course is designed to give Family Psychiatric Mental Health Nurse Practitioner students opportunities to integrate content about individuals and communities within cultural contexts. Advanced theoretical knowledge and critical thinking skills in relation to the nursing process will be demonstrated. Concepts of individual and community interventions will be applied in a wide range of service environment. Evidence based practice will be highlighted. Offered Fall.

**Prerequisite:** NUR 7030 with a minimum grade of B- and NUR 7615 with a minimum grade of B- and NUR 7625 with a minimum grade of B- and NUR 7650 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 16 Credits**

**NUR 7920 Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management I - Didactic Cr. 4**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs of the infant, children, and adolescent while providing the conceptual basis for advanced nursing. Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, prescription of therapeutic management/interventions, and outcomes assessment. Health promotion/wellness models, bio-psychosocial and cultural theories are integrated throughout the course. Nurse practitioner management models of care are used in the provision of care to clients. Emphasis is placed on the knowledge necessary to care for infants, children, and adolescents from a variety of cultural, ethnic and racial backgrounds. The specialty seminar component focuses on beginning application of the specialty knowledge of the infant, child, and adolescent health within a broad social context. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7207 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 7925

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7925 Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management I - Clinical Cr. 4**

This clinical course focuses on the application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on incorporating and using diagnostic reasoning, roles of advanced practice nurses, and interventions to promote and/or restore health within this specialty area. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7207 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 7920

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7930 Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care, and Management II -Didactic Cr. 3**

This course is designed to provide the student with the opportunity to further develop and demonstrate use of a model of advanced practice nursing. The specialty seminar focuses on strengthening and further development of the application of the specialty knowledge of children's health within a broad social context. Students manage the care of children while assessing for deviations from normal, which may result in collaboration or referral. Development of the advanced practice role, provision of a supportive clinical practice environment, and examination of factors that contribute to the vulnerability of children are included. Offered Winter.

**Prerequisites:** (NUR 7920 with a minimum grade of B and NUR 7925 with a minimum grade of B) or NUR 7225 with a minimum grade of B

**Corequisite:** NUR 7935

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7935 Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management II -Clinical Cr. 5**

The clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on strengthening and further development of the nurse practitioner management model, roles of advanced practice nurses and interventions to promote and/or restore health within this specialty area. Offered Winter.

**Prerequisites:** (NUR 7920 with a minimum grade of B and NUR 7925 with a minimum grade of B) or NUR 7225 with a minimum grade of B

**Corequisite:** NUR 7930

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7940 Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management III- Didactic Cr. 2**

This course is designed to provide the student with opportunities to further develop and demonstrate the use of a model of advanced practice nursing. The specialty seminar aims to strengthen and further develop the application of specialty knowledge of infant, child, and adolescent health within a broad social context. Students manage the care of infants, children, and adolescents while assessing for deviations from normal, which may result in collaboration or referral. Development of the advanced practice role, provision of a supportive clinical practice environment, and examination of factors that contribute to the vulnerability of infants, children, and adolescents are included. Offered Spring/Summer.

**Prerequisites:** NUR 7930 with a minimum grade of B and NUR 7935 with a minimum grade of B

**Corequisite:** NUR 7945

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7945 Pediatric Nurse Practitioner Acute Care: Pathophysiology, Clinical Care and Management III -Clinical Cr. 6**

This clinical course component focuses on the continued application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on the strengthening and further development of the nurse practitioner management model, roles of advanced practice nurses, and interventions to promote and/or restore health within this specialty area. Offered Spring/Summer.

**Prerequisites:** NUR 7930 with a minimum grade of B and NUR 7935 with a minimum grade of B

**Corequisite:** NUR 7940

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.



**NUR 7950 Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management I - Didactic Cr. 4**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs of well, low- and high-risk neonates while providing the conceptual basis for advanced nursing. Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. The nurse practitioner management model of care is used in the provision of care to clients. Emphasis is placed on the knowledge necessary to care for neonates from a variety of cultural, ethnic and racial backgrounds. The specialty seminar component focuses on beginning application of the specialty knowledge of normal and high-risk neonatal care within a broad social context. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7200 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-  
**Corequisite:** NUR 7955

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7955 Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management I - Clinical Cr. 4**

This clinical course focuses on the application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on incorporating and using diagnostic reasoning, roles of advanced practice nurses, and interventions to promote and/or restore health within this specialty area. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7200 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-  
**Corequisite:** NUR 7950

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7960 Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management II - Didactic Cr. 3**

This course is designed to provide the student with the opportunity to further develop and demonstrate use of a model of advanced practice nursing. The specialty seminar focuses on strengthening and further development of the application of the specialty knowledge of high-risk neonatal care within a broad social context. Students manage the care of high-risk neonates while assessing for deviations from normal which may result in collaboration or referral. Development of the advanced practice role, provision of a supportive clinical practice environment, and examination of factors that contribute to the vulnerability of neonates are included. Offered Winter.

**Prerequisites:** (NUR 7950 with a minimum grade of B and NUR 7955 with a minimum grade of B) or NUR 7225 with a minimum grade of B  
**Corequisite:** NUR 7965

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7965 Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management II - Clinical Cr. 5**

This course is designed to provide the student with the opportunity to further develop and demonstrate use of a model of advanced practice nursing. The specialty seminar focuses on strengthening and further development of the application of the specialty knowledge of high-risk neonatal care within a broad social context. Students manage the care of high-risk neonates while assessing for deviations from normal which may result in collaboration or referral. Development of the advanced practice role, provision of a supportive clinical practice environment, and examination of factors that contribute to the vulnerability of neonates are included. Offered Winter.

**Prerequisites:** (NUR 7950 with a minimum grade of B and NUR 7955 with a minimum grade of B) or NUR 7225 with a minimum grade of B

**Corequisite:** NUR 7960

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7970 Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management III - Didactic Cr. 2**

This course focuses on synthesis of an advanced practice nursing model for the care of high-risk neonates. Emphasis is on health promotion, development, and long term care of vulnerable populations within a broad social context. The specialty seminar component focuses on strengthening and applying the specialty knowledge of high-risk neonatal care within a broad social context. Offered Spring/Summer.

**Prerequisites:** NUR 7960 with a minimum grade of B and NUR 7965 with a minimum grade of B

**Corequisite:** NUR 7975

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7975 Neonatal Nurse Practitioner: Pathophysiology, Clinical Care, and Management III - Clinical Cr. 6**

This course focuses on synthesis of an advanced practice nursing model for the care of high-risk neonates. Emphasis is on health promotion, development, and long term care of vulnerable populations within a broad social context. The specialty seminar component focuses on strengthening and applying the specialty knowledge of high-risk neonatal care within a broad social context. Offered Spring/Summer.

**Prerequisites:** NUR 7960 with a minimum grade of B and NUR 7965 with a minimum grade of B

**Corequisite:** NUR 7970

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 7990 Directed Study in Nursing Cr. 1-8**

Individually designed courses of study in nursing. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 16 Credits**

**NUR 8011 Scientific Writing in Nursing Cr. 1**

This seminar assists students in becoming more effective scientific writers in order to be successful nurse scholars and scientists. Students will conduct a mini-review of the literature related to a specific aspect of urban health. After identifying a precise statement to focus their review, students will synthesize the literature and write iterative drafts of their review. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree; enrollment limited to students in the College of Nursing.

**NUR 8012 Philosophical Basis of Nursing Cr. 3**

This course focuses on the philosophical underpinnings of the discipline in order to assist students in understanding the tripartite role of a PhD-prepared nurse as scholar, scientist, and steward of the discipline. Students will explore the interaction of historical, theoretical, and philosophical contexts within which nursing science has developed, discuss the role each has played in the process of developing nursing as an academic research discipline, and examine these for congruence with contemporary thinking. Emphasis is on analyzing epistemological and ontological assumptions underlying the discipline, the science, and the practice of nursing. Debates arising from philosophy and the history of science and nursing inform discussions about the nature of science and nursing's past, present, and future directions in theory and knowledge development. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree; enrollment limited to students in the College of Nursing.

**NUR 8014 Health Interventions Cr. 3**

This seminar evaluates of intervention research to create nursing knowledge to improve health outcomes for urban populations. Students will examine select intervention designs to evaluate the effectiveness of therapeutic interventions related to their phenomenon of interest. The course also addresses important considerations of measurement, feasibility, fidelity, and data safety monitoring plans when conducting intervention research. Ethical concerns related to intervention research are discussed. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8020 Theoretically-Based Nursing Inquiry Cr. 3**

This course provides students with an opportunity to synthesize and apply knowledge from the theoretical and empirical literature to a phenomenon of interest. It will assist students in translating philosophical and theoretical perspectives into research methodologies. Concept analysis and construction, theory development, and relationships among conceptual frameworks, theories, and empirical referents are critically analyzed. The course will enable students to develop or further explicate a theoretical framework to guide a study within an emerging program of research in urban health. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8040 Quantitative Research Methods Cr. 3**

This is the first of a two-part sequence research methods course. The course focuses on the fundamental principles of research as a foundation to prepare PhD educated nurses in their scientific endeavors. Concepts related to reliability and validity, sampling theory, measurement strategies, data collection strategies, and ethical conduct in research are discussed. Strategies for maintaining data quality and integrity are also discussed. The emphasis of this course is on research principles as it relates to a quantitative approach. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8060 Qualitative Research Methods Cr. 3**

The emphasis of this course is on the relevance of qualitative approaches to the advancement of knowledge and practice in nursing and healthcare. An overview of qualitative traditions will be covered. Sampling, measurement, data collection, data management, and analysis will be discussed relative to various qualitative approaches. Strategies to maintain data quality and integrity are also discussed. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8065 Health Economics and Policy Evaluation of Nursing Care for Vulnerable Populations Cr. 3**

The intersection of vulnerable populations and their health care needs will be explored from a health economics and health policy approach. The course will promote discourse on the economic structure of the American health system as it relates to disparities. Further, it will explore the economic analytical evaluation of health care through current economic models of analysis. Offered Spring/Summer.

**Prerequisites:** FPH 7240 with a minimum grade of C and NUR 8630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Nursing Practice degree.

**NUR 8070 Advanced Qualitative Methods Cr. 3**

Focuses on analysis and critique of various traditions within qualitative methods phenomenology, grounded theory, case study) and an in-depth examination of various methodological approaches and technical skill related to participant recruitment, ethical issues, data collection, data management and analysis, and interpretation of for qualitative methods. Students must have a data set for analysis, even if they are in the process of collecting data or receive permission to use a faculty member's data set. Offered Winter.

**Prerequisites:** NUR 8060 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8085 Pilot Study - Part I Cr. 3**

This individually-tailored course is designed to provide BSN-PhD students with additional opportunity to gain experience in applying all aspects of the research process. The Pilot study is separate from, and may not replace, the one semester of required Research Residency. Part I of the Pilot Study focuses on the preliminary work and proposal development needed to implement a small study. The Pilot Study is done with the permission and direction of the student's academic/research advisor. Offered Every Term.

**Prerequisites:** NUR 8040 with a minimum grade of B, NUR 8060 with a minimum grade of B, NUR 8610 with a minimum grade of B, and NUR 8612 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8185 Pilot Study - Part II Cr. 3**

This individually-tailored course is designed to provide BSN-PhD students with additional opportunity to gain experience in applying all aspects of the research process. The Pilot study is separate from, and may not replace, the one semester of required Research Residency. Part II of the Pilot Study focuses on the implementation of a small study developed in Part I, including analysis of the data collected, and preparation of a report of the findings. Part II of the Pilot Study is done with the permission and direction of the student's academic/research advisor, and with required IRB approval. Offered Every Term.

**Prerequisites:** NUR 8040 with a minimum grade of B, NUR 8060 with a minimum grade of B, NUR 8610 with a minimum grade of B, NUR 8612 with a minimum grade of B, and NUR 8085 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8210 Determinants of Health and Health Disparities Cr. 3**

This course examines multiple determinants of health and issues related to health disparities among vulnerable populations in urban environments. Course content addresses biophysiological, genetic, behavioral, cultural, environmental (social and physical), economic, and health policy factors that affect health and contribute to health disparities. It prepares students to generate questions of concern to health and health outcomes; and to collaborate in interdisciplinary research teams regarding determinants of health and health disparities. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8335 Grant Writing Cr. 3**

This course focuses on writing a research grant application. In-class content will address essential aspects of research grant application and development. Out-of-class time will be spent on writing a grant proposal. The course provides students with an iterative process to develop their grant writing skills. Offered Spring/Summer.

**Prerequisites:** NUR 8040 with a minimum grade of B- (may be taken concurrently), NUR 8060 with a minimum grade of B- (may be taken concurrently), NUR 8610 with a minimum grade of B- (may be taken concurrently), and NUR 8612 with a minimum grade of B- (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8340 Family Nurse Practitioner I: Foundations Cr. 3**

This course will address the foundational knowledge and skills, from a family centered physiological systems-based approach, necessary to diagnose, treat and manage 1) common acute and chronic health care problems across the lifespan and 2) pregnancy and fertility issues for women of child-bearing age. Focus on refinement and further development of basic clinical diagnostic reasoning, diagnostic skills, including physical examination, diagnosis, treatment, management, and outcomes assessment. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7035 with a minimum grade of B-, NUR 7444 with a minimum grade of B-, and NUR 7555 with a minimum grade of B-

**Corequisite:** NUR 8345

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8345 Family Nurse Practitioner Clinical I: Foundations Cr. 5**

This clinical course will address the application of foundational knowledge and skills, from a family centered physiological systems-based approach, necessary to make complete an appropriate history and physical exam, differential diagnosis and development of treatment and management plan for selected acute and chronic diseases across the lifespan and care of the childbearing female. Focus will be on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment across the lifespan within the social context. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7035 with a minimum grade of B-, NUR 7444 with a minimum grade of B-, and NUR 7555 with a minimum grade of B-

**Corequisite:** NUR 8340

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8350 Family Nurse Practitioner II: Intermediate Cr. 3**

This course will address the synthesis of knowledge and skills, from a family centered physiological systems-based approach, necessary to diagnose, treat and manage 1) chronic health care problems based on selected systems across the lifespan and 2) problems of pregnancy 3) non-pharmacological and pharmacological approaches 4) common psychiatric issues, and 5) Gerontologic approaches. Focus on continued refinement and further development of clinical diagnostic reasoning, diagnostic skills, including physical examination, diagnosis, treatment, management, and outcomes assessment in the systems covered. Offered Winter.

**Prerequisites:** (NUR 8340 with a minimum grade of B and NUR 8345 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8355

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8355 Family Nurse Practitioner Clinical II: Intermediate Cr. 5**

The clinical component focuses on the continued application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on strengthening and further development of the nurse practitioner management model, roles of Family Nurse Practitioner. Knowledge and skills, from a family centered systems-based approach, necessary to diagnose, treat and manage, and interventions to promote and/or restore health will be applied. Offered Winter.

**Prerequisites:** (NUR 8340 with a minimum grade of B and NUR 8345 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8350

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8360 Family Nurse Practitioner III: Advanced Cr. 3**

This course will address the synthesis of knowledge and skills, from a family centered increasing complexity physiological systems-based approach, necessary to diagnose, treat and manage 1) chronic health care problems based on selected systems across the lifespan and 2) non-pharmacological and pharmacological approaches; 3) office emergencies 4) Gerontologic disease; and 5) professional and transition into practice issues. Focus on continued refinement and further development of clinical diagnostic reasoning, diagnostic skills, including physical examination, diagnosis, treatment, management, and outcomes assessment in the systems covered. Offered Spring/Summer.

**Prerequisites:** NUR 8350 with a minimum grade of B and NUR 8355 with a minimum grade of B

**Corequisite:** NUR 8365

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8365 Family Nurse Practitioner Clinical III: Advanced Cr. 5**

The clinical course focuses on the continued synthesis and application of specialty knowledge foundational to the Family Nurse Practitioner. Emphasis is placed on preparation for transition into practice based on the nurse practitioner management model, roles of Family Nurse Practitioner. Knowledge and skills, from a family centered systems-based approach, necessary to diagnose, treat and manage, and interventions to promote and/or restore health will be applied. Offered Spring/Summer.

**Prerequisites:** NUR 8350 with a minimum grade of B and NUR 8355 with a minimum grade of B

**Corequisite:** NUR 8360

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8370 Pediatric Primary Care Nurse Practitioner I: Foundations Cr. 4**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7207 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 8375

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8375 Pediatric Primary Care Nurse Practitioner Clinical I: Foundations Cr. 4**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. The lab component includes 180 hours of clinical practice. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7207 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 8370

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8380 Pediatric Primary Care Nurse Practitioner II: Intermediate Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Winter.

**Prerequisites:** (NUR 8370 with a minimum grade of B and NUR 8375 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8385

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8385 Pediatric Primary Care Nurse Practitioner Clinical II: Intermediate Cr. 5**

This clinical course component focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. The lab component includes 225 hours of clinical practice. Offered Winter.

**Prerequisites:** (NUR 8370 with a minimum grade of B and NUR 8375 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8380

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8390 Pediatric Primary Care Nurse Practitioner III: Advanced Cr. 2**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Spring/Summer.

**Prerequisites:** NUR 8380 with a minimum grade of B and NUR 8385 with a minimum grade of B

**Corequisite:** NUR 8395

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8395 Pediatric Primary Care Nurse Practitioner Clinical III: Advanced Cr. 6**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Spring/Summer.

**Prerequisites:** NUR 8380 with a minimum grade of B and NUR 8385 with a minimum grade of B

**Corequisite:** NUR 8390

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8410 Psychiatric Mental Health Nurse Practitioner I: Foundations Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7444 with a minimum grade of B-, NUR 7555 with a minimum grade of B-, NUR 7615 with a minimum grade of B-, NUR 7625 with a minimum grade of B-, and NUR 7650 with a minimum grade of B-

**Corequisite:** NUR 8415

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8415 Psychiatric Mental Health Nurse Practitioner Clinical I: Foundations Cr. 5**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. The PMHNP specialty content is designed to give Family Psychiatric Mental Health Nurse Practitioner students opportunities to integrate content about individuals and communities within cultural contexts. Advanced theoretical knowledge and critical thinking skills in relation to the nursing process will be demonstrated. Concepts of individual and community interventions will be applied in a wide range of service environment. Evidence based practice will be highlighted. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7444 with a minimum grade of B-, NUR 7555 with a minimum grade of B-, NUR 7615 with a minimum grade of B-, NUR 7625 with a minimum grade of B-, and NUR 7650 with a minimum grade of B-

**Corequisite:** NUR 8410

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.



**NUR 8420 Psychiatric Mental Health Nurse Practitioner I: Intermediate Cr. 3**

This course is designed to provide the student with the knowledge and opportunity to further develop and demonstrate use of a model of advanced practice across the developmental lifespan. The specialty seminar focuses on strengthening and further development of the application of the specialty knowledge of acute care, children, community, neonates, primary care, psychiatric and women's health within a broad social context. Students manage the care of clients in their designated specialty area while assessing for deviations from normal which may result in collaboration or referral. Development of the advanced practice role, provision of a supportive clinical practice environment, and examination of factors that contribute to the vulnerability of clients across the developmental lifespan are included. Offered Winter.

**Prerequisites:** (NUR 8410 with a minimum grade of B and NUR 8415 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8425

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8425 Psychiatric Mental Health Nurse Practitioner Clinical II: Intermediate Cr. 5**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Winter.

**Prerequisites:** (NUR 8410 with a minimum grade of B and NUR 8415 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8420

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8430 Psychiatric Mental Health Nurse Practitioner III: Advanced Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the adult developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. The APN management models of care are used in the provision of care to clients. Emphasis is placed on the knowledge necessary to care for clients across the adult developmental spectrum from a variety of cultural, ethnic, and racial backgrounds. Offered Spring/Summer.

**Prerequisites:** NUR 8420 with a minimum grade of B and NUR 8425 with a minimum grade of B

**Corequisite:** NUR 8435

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8435 Psychiatric Mental Health Nurse Practitioner Clinical III: Advanced Cr. 5**

The clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Spring/Summer.

**Prerequisites:** NUR 8420 with a minimum grade of B and NUR 8425 with a minimum grade of B

**Corequisite:** NUR 8430

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8440 Adult Gerontology Primary Care Nurse Practitioner I: Foundations Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7444 with a minimum grade of B-, and NUR 7555 with a minimum grade of B-

**Corequisite:** NUR 8445

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8445 Adult Gerontology Primary Care Nurse Practitioner Clinical I: Foundations Cr. 5**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7444 with a minimum grade of B-, and NUR 7555 with a minimum grade of B-

**Corequisite:** NUR 8440

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8450 Adult Gerontology Primary Care Nurse Practitioner II: Intermediate Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Winter.

**Prerequisites:** (NUR 8440 with a minimum grade of B and NUR 8445 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8455

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8455 Adult Gerontology Primary Care Nurse Practitioner Clinical II: Intermediate Cr. 5**

This clinical course component focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Winter.

**Prerequisites:** (NUR 8440 with a minimum grade of B and NUR 8445 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8450

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8460 Adult Gerontology Primary Care Nurse Practitioner III: Advanced Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Spring/Summer.

**Prerequisites:** NUR 8450 with a minimum grade of B and NUR 8455 with a minimum grade of B

**Corequisite:** NUR 8465

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8465 Adult Gerontology Primary Care Nurse Practitioner Clinical III: Advanced Cr. 5**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Spring/Summer.

**Prerequisites:** NUR 8450 with a minimum grade of B and NUR 8455 with a minimum grade of B

**Corequisite:** NUR 8460

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8470 Pediatric Acute Care Nurse Practitioner I: Foundations Cr. 4**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7207 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 8475

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8475 Pediatric Acute Care Nurse Practitioner Clinical I: Foundations Cr. 4**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7207 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 8470

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8480 Pediatric Acute Care Nurse Practitioner II: Intermediate Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Winter.

**Prerequisites:** (NUR 8470 with a minimum grade of B and NUR 8475 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8485

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8485 Pediatric Acute Care Nurse Practitioner Clinical II: Intermediate Cr. 5**

This clinical course component focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Winter.

**Prerequisites:** (NUR 8470 with a minimum grade of B and NUR 8475 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8480

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8490 Pediatric Acute Care Nurse Practitioner III: Advanced Cr. 2**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Spring/Summer.

**Prerequisites:** NUR 8480 with a minimum grade of B and NUR 8485 with a minimum grade of B

**Corequisite:** NUR 8495

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8495 Pediatric Acute Care Nurse Practitioner Clinical III: Advanced Cr. 6**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Spring/Summer.

**Prerequisites:** NUR 8480 with a minimum grade of B and NUR 8485 with a minimum grade of B

**Corequisite:** NUR 8490

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8540 Adult Gerontology Acute Care Nurse Practitioner I: Foundations Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7444 with a minimum grade of B-, and NUR 7555 with a minimum grade of B-

**Corequisite:** NUR 8545

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8545 Adult Gerontology Acute Care Nurse Practitioner Clinical I: Foundations Cr. 5**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7444 with a minimum grade of B-, and NUR 7555 with a minimum grade of B-

**Corequisite:** NUR 8540

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8550 Adult Gerontology Acute Care Nurse Practitioner II: Intermediate Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Winter.

**Prerequisites:** (NUR 8540 with a minimum grade of B and NUR 8545 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8555

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8555 Adult Gerontology Acute Care Nurse Practitioner Clinical II: Intermediate Cr. 5**

This clinical course component focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Winter.

**Prerequisites:** (NUR 8540 with a minimum grade of B and NUR 8545 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8550

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8560 Adult Gerontology Acute Care Nurse Practitioner III: Advanced Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Spring/Summer.

**Prerequisites:** NUR 8550 with a minimum grade of B and NUR 8555 with a minimum grade of B

**Corequisite:** NUR 8565

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8565 Adult Gerontology Acute Care Nurse Practitioner Specialty III: Advanced Cr. 5**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Spring/Summer.

**Prerequisites:** NUR 8550 with a minimum grade of B and NUR 8555 with a minimum grade of B

**Corequisite:** NUR 8560

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8570 Neonatal Nurse Practitioner I: Foundations Cr. 4**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7200 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 8575

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8575 Neonatal Nurse Practitioner Clinical I: Foundations Cr. 4**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B, NUR 7200 with a minimum grade of B-, and NUR 7444 with a minimum grade of B-

**Corequisite:** NUR 8570

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8580 Neonatal Nurse Practitioner II: Intermediate Cr. 3**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Winter.

**Prerequisites:** (NUR 8570 with a minimum grade of B and NUR 8575 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8585

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8585 Neonatal Nurse Practitioner Clinical II: Intermediate Cr. 5**

This clinical course component focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Winter.

**Prerequisites:** (NUR 8570 with a minimum grade of B and NUR 8575 with a minimum grade of B) or (NUR 8670 with a minimum grade of B and NUR 8675 with a minimum grade of B)

**Corequisite:** NUR 8580

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8590 Neonatal Nurse Practitioner III: Advanced Cr. 2**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout the course. Offered Spring/Summer.

**Prerequisites:** NUR 8580 with a minimum grade of B and NUR 8585 with a minimum grade of B

**Corequisite:** NUR 8595

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8595 Neonatal Nurse Practitioner Clinical III: Advanced Cr. 6**

This clinical course focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Spring/Summer.

**Prerequisites:** NUR 8580 with a minimum grade of B and NUR 8585 with a minimum grade of B

**Corequisite:** NUR 8590

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8604 Health Analytics and Data Management Cr. 4**

This course provides the student with a foundation to evaluate the psychometric properties of outcome measures; to evaluate group differences for clinical programs, quality/process improvement, or practice change projects; and to synthesize results across qualitative and quantitative studies. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8610 Applied Statistical Analysis for Health Care Research I Cr. 3**

The purpose of this course is to provide students with the application of selected univariate statistical procedures commonly used in nursing and health research. Topics will include descriptive and inferential statistics such as measures of central tendency and variability, sampling, estimation, hypothesis testing, analysis of variance, regression and correlation, analysis of covariance, analysis of frequency and nonparametric procedures. Emphasis is on the utilization and interpretation of basic univariate procedures applied in nursing and health research. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8612 Applied Statistical Analysis for Health Care Research II Cr. 3**

This course provides students with an opportunity to apply advanced multivariate statistical procedures. It will cover a range of advanced quantitative techniques, such as discriminant analysis, logistic regression analysis: dichotomous response, logistic regression analysis: polytomous response, principal component analysis, factor analysis, cluster analysis and survival analysis. It also addresses statistical analysis for advanced quantitative designs such as analysis of variance for some unbalanced designs, analysis of variance for some fixed-, random-, and mixed- effects models, nested or hierarchical designs, multivariate repeated-measures analysis of variance and power analysis and sample size determination. An introduction to psychometric theory for instrument development also will be addressed. Offered Winter.

**Prerequisites:** NUR 8610 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8615 Informatics Innovations in Nursing Cr. 3**

Development of understanding of concepts in health care informatics relevant to the advanced practice nurse. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8620 Foundations of Nursing as a Discipline Cr. 3**

Students will critically examine factors that have contributed to the development of the discipline of nursing, including the impact of philosophical, epistemological, and historical factors on the development of nursing science and its translation. Relevant theories and models from nursing and related disciplines for applicability to Doctor of Nursing practice role will be explored. Strategies for evaluating theory as a foundation for the DNP project will be developed. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Nursing Practice program; enrollment is limited to Graduate level students.



**NUR 8625 Evidence Based Nursing Practice: Theoretical and Methodological Issues Cr. 3**

Scientific foundation for integration of evidence based knowledge into clinical practice. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8630 Conceptual Methodologies in Health Policy Leadership and Ethics Cr. 3**

Basic understanding of health policy and ethical theories and practice, skills in policy development and analysis, joined with ethical analysis. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8635 Clinical Practice Outcomes: Evaluation and Benchmarking Methodologies Cr. 3**

Foundational knowledge and skills necessary to measure clinical outcomes and quality in advanced clinical nursing practice. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8650 Advanced Professional Leadership Cr. 3**

Preparation of advanced nurses and others to effectively transition into the role of leader and change agent. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 8653 Healthcare Analytic Methods, Data Management, Evaluation, and Outcomes Cr. 4**

This course prepares students to appraise data for use in design, delivery, and evaluation of evidence-based care. This appraisal includes use of mechanisms for securing data and use of properly designed data collection instruments to assist with making practical conclusions about empirical data using clinical judgement to set clinical benchmarks and assess organizational culture with the goal of improving patient, population, and health system. Offered Spring/Summer.

**Prerequisites:** NUR 7000 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8665 Health Policy, Economics, Ethics and Evaluation in Advanced Practice Nursing Cr. 4**

Upon completion of this course, students will attain knowledge and skills that will allow them to critically analyze problems, assess feasibility of policy and program implementation, and to propose policy initiatives, that are integral competencies for practice in the heavily regulated discipline of nursing. Students will engage in discourse on the economic structure of the American health system as it relates to disparities. The focus will be on the role of the Advanced Practice Nurse in setting a policy agenda that identifies the gaps in policy and economics impacting vulnerable populations. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8670 APN Specialty I: Foundations Cr. 3-4**

This course provides students with the foundational knowledge and skills necessary to manage the health care needs across the developmental spectrum, while providing the conceptual basis for advanced practice nursing (APN). Course content focuses on refinement and further development of basic clinical diagnostic skills, including physical examination, diagnosis, management, interventions, and outcomes assessment. Health promotion/wellness models, biopsychosocial and cultural theories are integrated throughout. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B

**Corequisite:** NUR 8675

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8675 APN Specialty Clinical I: Foundations Cr. 4-5**

The clinical (lab) component focuses on the continued application of specialty knowledge foundational to advanced practice nursing or nurse-midwifery. Emphasis is placed on strengthening and further development of the nurse practitioner/nurse-midwifery management model, roles of advanced practice nurses, and interventions to promote and/or restore health within each specialty area. Offered Fall.

**Prerequisites:** NUR 7030 with a minimum grade of B

**Corequisite:** NUR 8670

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8890 Special Topics in Nursing Cr. 1-8**

Exploration and analysis of topics significant to the development of nursing science and professional practice at the doctoral level. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**Repeatable for 8 Credits**

**NUR 8895 Population Health for Nursing Cr. 3**

Introduction to the basic concepts of epidemiology as tools that will promote understanding of the complexity of local, national, and global healthcare systems. Emphasis is on the use of epidemiologic reasoning in deriving inferences about the etiology of health outcomes from population data and in guiding the design of health service programs. Discussion of behavioral and contextual factors that converge to impact the health of individuals, families, and communities in relationship to strategies that advanced practice nurses use to mitigate these factors. Students will be challenged to develop approaches for using epidemiology to influence, create, and lead change. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 8990 Directed Study Cr. 1-8**

Individually designed courses in nursing for doctoral students whose needs and interests are not met in scheduled classes. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**NUR 9500 DNP Project Practicum I Cr. 2**

The course provides guided exploration of a practice topic and/or population of interest for a DNP project. The project practicum gives the student hands on experience in her/his area of clinical inquiry. A minimum of 30 of the 90 practicum hours will be dedicated to faculty approved observational experiences with clinical experts and potential implementation sites. Offered Every Term.

**Prerequisites:** NUR 8620 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 9505 DNP Project Practicum II Cr. 2**

This course requires the student to engage faculty, community and/or healthcare organization leaders for project proposal planning of an evidenced-based DNP Project based on the specific practice topic identified. The student must establish the state of the science upon which the DNP Project will be based. The student will establish working relationships with community or organizational leaders and develop a broader perspective of specific practice topic identified. The DNP Project Chair, practice leaders and experts will assist with development of a plan that is relevant and feasible. Offered Every Term.

**Prerequisites:** NUR 8625 with a minimum grade of B- and NUR 9500 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 9508 DNP Project Proposal Development Practicum I Cr. 4**

This course requires the student to engage faculty and community leaders in the development of their translation of science into practice through application of theory, evidence-based practice, leadership, and DNP focused methods. The students will utilize the required core courses to develop a project proposal ready for implementation at completion of the semester. The student will establish working relationships with community or organizational leaders and develop a broader perspective of their specific practice change topic. Offered Every Term.

**Prerequisites:** NUR 7000 with a minimum grade of B-, NUR 8620 with a minimum grade of B-, NUR 8625 with a minimum grade of B-, NUR 8650 with a minimum grade of B-, (NUR 8653 with a minimum grade of B- or (NUR 8635 with a minimum grade of B- and NUR 8604 with a minimum grade of B-)), and (NUR 8665 with a minimum grade of B- or (NUR 8630 with a minimum grade of B- and NUR 8065 with a minimum grade of B-))

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 9510 DNP Project Practicum III Cr. 4**

This is an individualized practicum supervised and approved by the DNP Project Chair. This course builds on the knowledge and skills developed in the core courses. The student, working with their DNP Project Chair, will implement the project as approved by the student's DNP Project Committee. The DNP student will meet with relevant organizational leaders as it relates to the development and implementation of the DNP Project. The DNP Project will be implemented in a setting approved by the DNP Project Committee. Offered Every Term.

**Prerequisites:** NUR 9505 with a minimum grade of B and NUR 9508 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 9520 DNP Project Cr. 4**

This is an individualized practicum supervised and approved by the DNP Project Chair. This course builds on the knowledge and skills developed in the core courses. The student, working with their DNP Project Committee, will prepare the final DNP Product as required by the DNP Program. The course provides the student with the opportunity to demonstrate their ability to analyze, synthesize and apply clinical inquiry knowledge and competencies through written and public presentation. Offered Fall, Winter.

**Prerequisites:** NUR 9510 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Nursing.

**NUR 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**NUR 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** NUR 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** NUR 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** NUR 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**NUR 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## OT - Occupational Therapy

**OT 4990 Directed Study Cr. 1-2**

Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 5 Credits**

**OT 5010 Foundations of Occupational Therapy and Occupational Science Cr. 4**

Provides an introduction to occupation, the history and philosophy of occupational therapy, evidence and theoretical models that guide the profession, the sociocultural forces that influence occupation, and the processes and procedures utilized by the occupational therapist. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$50

**OT 5055 Life Occupations I Cr. 3**

The first of two life occupations courses across the lifespan focuses on self care based on the Occupational Therapy Practice Framework III. Students will examine areas of occupation and develop assessment and intervention strategies while refining documentation skills. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 5065 Life Occupations II Cr. 3**

Role of leisure in health, wellness, prevention and rehabilitation; focus: across the life span. Explores and develops assessment tools, treatment plans for diverse populations; includes experiential learning. Second of two courses. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$50

**OT 5150 Cognition and Visual Perception Cr. 3**

Offers further information regarding control of movement, forms of learning, sensory-perceptual processing, and cognitive processing for engagement in meaningful occupation. Offered Yearly.

**OT 5220 Therapeutic Media Cr. 2**

The performance, adaptation and utilization of processes involved in selected creative and manual tasks and activities, which have therapeutic value for individuals across the lifespan. Included are principles and methods of teaching appropriate to the role of the occupational therapist. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 5300 Surface Anatomy for Occupational Therapy Cr. 2**

Students will: 1) practice and develop palpation skills, 2) locate bony landmarks, muscles, tendons, joints, ligaments, nerves, and arteries on the living human body, 3) appreciate differences of a variety of tissue types. Offered Fall.

**Prerequisites:** OT 5505 (may be taken concurrently) and OT 5510 (may be taken concurrently)

**OT 5310 Movement Assessment and Intervention Cr. 4**

Emphasizes theory and motor skill learning related to movement assessment including range of motion, strength, sensation, and coordination. While upper limb assessment is emphasized, it is expected that the student will be able to use available resources to assess the lower limb, trunk, neck and head as needed. Principles of and motor skills for intervention in each area will also be addressed. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$30

**OT 5400 Neurosciences for Health Care Professionals Cr. 3**

Study of the human central nervous system; emphasis on sensory and motor systems and structures that contribute to normal movement. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$50

**Equivalent:** PT 5400

**OT 5410 Health Conditions I: Physical Disabilities Cr. 4**

A series of interdisciplinary presentations on the clinical manifestations and management of selected problems due to disease states or injury; includes etiology, assessment, course and medical specialty management of the problems. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 5420 Health Conditions II: Mental Health Cr. 4**

Major categories of psychiatric conditions throughout the lifespan are presented. Diagnostic criteria and treatment strategies in traditional and community settings are presented with fieldwork requirements. Guest lectures from medical and community settings present on mental health conditions and implications. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 5500 Aging: From Community to Longterm Care Cr. 3**

The goal of the course is to strengthen knowledge and skills in aging and geriatric rehabilitation. Content includes: successful aging, age-related health conditions, gerontology research for OTs, at risk older adults, assisted living and long term care, policy and legislation. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Occupational Therapy; enrollment is limited to Graduate or Undergraduate level students.

**OT 5505 Clinical Applications of Human Anatomy Cr. 3**

Knowledge of basic human anatomy for students in health science professional programs; foundation for further study in clinical sciences. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Occupational Therapy or Physical Therapy.

**Equivalent:** PT 5505

**OT 5510 Clinical Applications of Human Anatomy: Laboratory Cr. 1**

Examination of dissections, dissection of human cadavers; didactic study. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$200

**Equivalent:** PT 5510

**OT 5610 Group Dynamics Cr. 5**

Experiential approach to learning group dynamics and achieving skills necessary for conducting effective therapeutic groups for a variety of clinical and community settings. Development of self awareness and social skills necessary in building practical group skill in occupational therapy intervention. Level I fieldwork experiences. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$50

**OT 5650 Pathophysiology for Health Sciences Cr. 3**

Fundamental knowledge of the nature of disease for the health sciences student; physiologic and morphologic changes accompanying disease processes; mechanisms of repair and recovery. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Equivalent:** PT 5650, RT 5650

**OT 5993 Writing Intensive Seminar in Occupational Therapy Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with designated corequisite; consult Schedule of Classes for corequisites available each term. Satisfies University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Every Term.

**Prerequisite:** OT 3000 (may be taken concurrently) with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**OT 6060 Occupational Therapy Research I Cr. 3**

Introduces graduate level students to the logic of scientific research. In particular, students will learn about the process of scientific inquiry in the health sciences in general and occupational therapy specifically. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 6065 Occupational Therapy Research II Cr. 1**

The second course in the three-course research thread, Research II is taken with the support of OT faculty members conducting research in an area of interest to the student. Students will work with the faculty member to further refine their literature review (completed in Research I) and develop a problem statement and research questions. Students will also work with a faculty mentor to submit or review IRB for the study/ area of interest. Offered Spring/Summer.

**Prerequisite:** OT 6060

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 6070 Occupational Therapy Research III Cr. 2**

Application of research principles and methods to solving occupational therapy problems. Offered Fall.

**Prerequisite:** OT 6060 and OT 6065

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$15

**OT 6090 Directed Research Cr. 1-4**

Opportunity to conduct supervised research and to participate in research activities of a mentor. Offered Every Term.

**Prerequisite:** OT 6070

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 8 Credits**

**OT 6100 Occupational Therapy Assessments and Interventions I (Ortho) Cr. 5**

Examines OT assessments and interventions and how they impact an individual's life occupations. The emphasis of this course is on musculoskeletal and orthopedic diagnoses. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 6140 Environment, Occupation and Health Cr. 3**

Through this course, we bring the study of environments and places to the forefront and examine their dynamic relationship with occupation and health. The foci of the course are several. We will develop an understanding of the importance and complexity of "environment" and "place" as concepts. We will use that understanding to examine some key types of environments and places through which occupation occurs. We also will assess the role of environments and places in occupation, disability, therapy, and well-being. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 6200 Occupational Therapy Assessments and Interventions II Cr. 5**

This course offers didactic and practical learning experience designed to bridge the gap between physical disabilities, theory and practice focused on assessments and interventions for neurological diagnoses with a specialized section on hand therapy. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$67

**OT 6230 Motor Control Cr. 3**

Current theories of motor control and motor learning; recovery of function and normal movement across the lifespan. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**OT 6300 Occupational Therapy Assessments and Interventions III (Pediatric) Cr. 5**

Occupation-based therapeutic activities, intervention strategies, documentation skills, and discharge planning that promotes client-centered outcome; the focus is on development birth through young adulthood. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$65

**OT 6320 Patient Perspectives of Health, Illness and Culture Cr. 2**

People from various cultures (religious, ethnic, sexual orientation, disability, chronic illness, economic status) discuss in small groups how these cultures influence living with a chronic illness. Students also discuss readings on health culture and keep a journal on their course experience. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Equivalent:** PPR 6300

**OT 7120 Topics in Assistive Technology Cr. 3**

Theories of assistive technology; their application in health care and community settings. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**OT 7200 Occupational Therapy Practice in Aging Cr. 3**

Covers the concepts and the process of aging and the role of occupational therapy with adults impacted by changing physical health and cognitive capacities and environments. Focuses on the effects of major late life transitions including, for example, retirement from paid employment, driving cessation, household downsizing and caregiving. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**OT 7300 Professional Lit Cr. 3**

Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**OT 7410 Pediatrics Special Topics Cr. 3**

This advanced pediatric course will provide an in-depth view of specialized pediatrics topics with hands-on opportunities. Specialty topics covered in this course: Models of Practice for children and families, Feeding and Oral Motor Intervention, Sensory Processing/Self-Regulation, Vision Therapy, Psychotropic Medications for Pediatric Diagnosis, Research and Intervention for children with Developmental Disorders and Psychosocial Dysfunction, Behavior management, Adjunct Modalities for Pediatric Diagnosis (i.e. Splinting, Casting, Kinesiotaping, Pressure garments, etc). Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**OT 7500 Occupational Therapy Synthesis Cr. 3**

Synthesizes learning from all previous coursework while preparing the student to take the National Board Certification of Occupational Therapy (NBCOT) examination and business and management fundamentals. This course will include blended learning methodology to enhance learning and peer interaction. Students will complete a review of previously learned content and apply that content into practical clinical scenarios and gain knowledge to successfully pass the NBCOT exam. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 9 Credits**

**OT 7700 Research Dissemination Cr. 3**

Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**OT 7750 Professional Field Experience Cr. 1-4**

Supervised placement in area of specialization. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**OT 7800 Occupational Therapy Capstone Cr. 3**

Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Occupational Therapy; enrollment is limited to Graduate level students.

**OT 7898 Level II Fieldwork A: Medical Cr. 8**

Supervised field work experience in affiliated health care agencies. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**OT 7899 Level II Fieldwork B: Community Cr. 8**

Supervised field work experience in affiliated health care agencies. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.



### **OT 7990 Directed Study Cr. 1-3**

Opportunities for study and experience in areas of special interest in occupational therapy. Written report and oral presentation required. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.  
**Repeatable for 5 Credits**

### **OT 7999 Masters Essay Dir Cr. 1-2**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

### **OT 8990 Masters Project Dir Cr. 1-5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

### **OT 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Prerequisite:** OT 7700

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 8 Credits**

## **PAA - Pathologists' Assistant**

### **PAA 5020 Applied General Pathology Cr. 2**

Fundamental principles and theories applied to general pathology with special emphasis on disease processes and mechanisms found in adult and pediatric pathology. Offered Spring/Summer.

**Corequisite:** PAA 7250

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program.

### **PAA 5050 Clinical Terminology and Methodology I for the Pathologists' Assistant Cr. 2**

Clinical and medical terminology specific to the pathologists' assistant practice along with associated methodologies used in surgical and autopsy pathology in the second year of the program. Introduction to laboratory grossing methodologies of human organ system of simple pathologic and non-pathologic specimens. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program.

**Fees:** \$100

### **PAA 5051 Clinical Terminology and Methodology II for the Pathologists' Assistant Cr. 2**

Clinical and medical terminology specific to the pathologists' assistant practice along with associated methodologies used in surgical and autopsy pathology in the second year of the program. The laboratory component of the course is designed to familiarize students with surgical procedures, the most common surgical specimens received at the bench, and the manner in which such specimens are grossed, inked, sectioned, dictated, and submitted to histology. The use of simulation laboratory sessions for practice of grossing techniques and methodologies of simple to medium complexity specimen(s) will emphasize the step-wise grossing, safety, and dictation of given pathological specimens. Offered Fall.

**Prerequisite:** PAA 7060 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program.

**Fees:** \$100

### **PAA 5052 Clinical Terminology and Methodology III for the Pathologists' Assistant Cr. 2**

Clinical and medical terminology specific to the pathologists' assistant practice along with associated methodologies used in surgical and autopsy pathology in the second year of the program. The laboratory component continues to familiarize students with surgical procedures, grossing methodologies, and procedural inking, sectioning, and sampling of medium to high complexity of human organ tissues in a simulation gross room laboratory environment, emphasizing the step-wise grossing, safety, and dictation of given pathological specimens. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program.

**Fees:** \$100

### **PAA 5100 Medical Photography and Techniques in Pathology Cr. 2**

Theory of the behavior of light and selection of appropriate lenses; principles of exposure, color, and filters; macro- and microphotography. Adjustment of clinical photographs and student photographs corrected by Adobe Photoshop Professional resulting in a student Eportfolio. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program.

**Fees:** \$100

### **PAA 5200 Medical Microbiology for Technical Professionals: Pathologists' Assistant Cr. 2**

Infectious diseases affecting major organ systems of the body encountered by the pathologists' assistant. Clinical case study analysis with student presentations. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program.

### **PAA 6060 Human Embryology and Pediatric Pathology Cr. 2**

Embryological basis of pediatric and childhood diseases along with adult presentations. Human embryological correlations to clinical settings: case study analysis specific to the pathologists' assistant and clinical evaluation of pediatric pathology. Recognition of anatomical presentations with embryological development in normal and diseased states. Offered Fall.

**Prerequisite:** PAA 7060 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Pathologists'Assistant Program.

### **PAA 6150 Histochemistry for the Pathologists' Assistant Cr. 4**

Study of techniques specific to the Pathologists' Assistant involved in the preparation of tissues prior to microscopic examination and processing inclusive of embedding, sectioning, preparing frozen sections and performing routine and special stain on a variety of tissues. Offered Winter.

**Prerequisites:** PAA 6560 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program.

**Fees:** \$200

### **PAA 6420 Laboratory Management and Quality Management in Anatomic Pathology Cr. 2**

Interpersonal and technical management techniques for the clinical and anatomic pathology laboratory settings. Quality management techniques, policies, protocols and best practices for the pathologists' assistant. Safety mandates and protocols as applied to anatomic and surgical pathology. Discussion and analysis of governmental mandates covering laboratory improvement (CLIA). Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program.

**PAA 6560 Human Histology and Clinical Correlations I Cr. 2**

Characteristics and identification of human tissue microanatomy. Functional interpretation of human microstructure. Introduction to tissue classification and frozen sections, as well as the examination of normal and abnormal stained tissue sections prepared from a variety of organ systems allowing for clinical correlations in patient case presentations. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists' Assistant Program.

**Fees:** \$100

**PAA 6561 Human Histology and Clinical Correlations II Cr. 3**

Characteristics and identification of human tissue microanatomy. Continued appreciation and differentiation of normal and abnormal tissue microscopy in stained tissue sections prepared from a variety of organ systems, with application of clinical correlations in patient case presentations. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$100

**PAA 7060 Human Anatomy and Physiology for Pathologists' Assistants Cr. 3**

Detailed comprehensive review of human anatomy and physiology as it pertains to the pathologists' assistant practice. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists' Assistant Program; enrollment is limited to Graduate level students.

**Fees:** \$350

**PAA 7061 Human Anatomy and Physiology II for the Pathologists' Assistant Cr. 3**

Part two of a detailed comprehensive review of human anatomy and physiology as it pertains to the pathologists' assistant practice with comprehensive examination of anatomical organs and organ systems through the use of human cadaveric dissections, 3D models, computer software applications, medical imaging, and clinical correlations as it pertains to the pathologists' assistant scope of practice. Offered Fall.

**Prerequisite:** PAA 7060 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists' Assistant Program; enrollment is limited to Graduate level students.

**Fees:** \$100

**PAA 7062 Neuroanatomy for the Pathologists' Assistant Cr. 2**

Comprehensive review of human central nervous system anatomy linking structure to function at the clinical and neurobiological level. Integration of neurocranium and viscerocranium structures with clinical presentations as it pertains to the Pathologists' Assistant practice will be reviewed in detail in the cadaver laboratory. Offered Winter.

**Prerequisite:** PAA 7061 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$100

**PAA 7063 Advanced Human Gross Anatomy Cr. 3**

Laboratory based course with hands-on dissection of the human body organized around a regional approach to anatomy for the current, or prospective, applied and/or health science student. Students should have completed a previous Anatomy lecture and laboratory course. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$400

**PAA 7200 Introduction to Autopsy Techniques and Forensic Pathology Cr. 2**

Comprehensive review of general and specialized techniques for performing postmortem examinations in both the hospital and medical examiner settings, with emphasis on the external examination, evisceration, and block dissection of the adult, perinatal, and pediatric decedent as it pertains to specific forensic pathology cases and presentations. Offered Winter.

**Prerequisites:** PAA 7060 with a minimum grade of B and PAA 7061 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists' Assistant Program; enrollment is limited to Graduate level students.

**Fees:** \$350

**Equivalent:** MS 4200

**PAA 7210 Introduction to Autopsy Techniques and Forensic Pathology: Laboratory Cr. 1**

Comprehensive review of general and specialized techniques for performing postmortem examinations in both the hospital and medical examiner settings with emphasis on the external examination, evisceration, and block dissection of the adult, perinatal, and pediatric decedent. Focus on developing techniques for the external examination of adult and pediatric cadaveric specimens, toxicology retrieval, evisceration techniques, and appropriate block dissection methodology and procedures. Offered Winter.

**Prerequisites:** PAA 7060 with a minimum grade of B, PAA 7061 with a minimum grade of B, and PAA 7251 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists' Assistant Program; enrollment is limited to Graduate level students.

**PAA 7250 Clinical Pathology I Cr. 2**

Systemic pathologies affecting the following organ and organ systems: white blood cells, lymph nodes, spleen and thymus, red blood cells and bleeding disorders, peripheral nerve and skeletal muscles, CNS, the skin, and the bones, joints and soft tissue tumors. Concepts of molecular diagnostics are integrated when appropriate. Offered Spring/Summer.

**Corequisite:** PAA 5020

**Restriction(s):** Enrollment is limited to students with a major in Pathologists' Assistant Program; enrollment is limited to Graduate level students.

**PAA 7251 Clinical Pathology II Cr. 3**

Continuation of PAA 5020 and PAA 7250. Systemic pathologies affecting the following organ and organ systems: the blood vessels and heart, the lung, head, and neck, the gastrointestinal tract, liver and gallbladder, and the eye. Concepts of molecular diagnostics are integrated when appropriate. Offered Fall.

**Prerequisite:** PAA 7060 with a minimum grade of B and PAA 7250 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists' Assistant Program; enrollment is limited to Graduate level students.

**PAA 7252 Clinical Pathology III Cr. 3**

Continuation PAA 7250 and 7251. Systemic pathologies affecting the following organ and organ systems: the kidney, the lower urinary tract and male genital system, the female genital tract, the breast, the endocrine system and the pancreas. Concepts of molecular diagnostics are integrated when appropriate. Offered Winter.

**Prerequisite:** PAA 7060 with a minimum grade of B and PAA 7061 with a minimum grade of B and PAA 7251 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists' Assistant Program; enrollment is limited to Graduate level students.

**PAA 7300 Elective Independent Study in Clinical, Core and Forensic Pathology Cr. 1-4**

Remedial independent study in a core subject area involving clinical pathology and/or forensic autopsy pathology that fulfills cognitive assessments, content specific assignments or projects, indicative of pre-clinical entry-level expectations of the program. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PAA 7420 Future Trends in Pathology Practice and Education Methodology Cr. 1**

Group discussion of trends associated with healthcare, patient care, technology, legal issues, education methodology, licensure and accreditation issues; medical ethics, safety, medicolegal, and quality management in anatomic, surgical and autopsy pathology are covered. Presentations lead to recommendations for future best practices in a variety of pathology settings. Students present research findings via PowerPoint and in a seminar format. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program; enrollment is limited to Graduate level students.

**PAA 7650 Surgical Pathology I Cr. 8**

Application of principles, theories, and clinical practices related to grossing (simple) surgical dissections that address NAACLS competency levels associated with adult and pediatric surgical pathology techniques, specimen photomicrography, as well as develop techniques in the proper handling of specimens for histological processing through varied techniques within a modern instrumental histology laboratory by following quality management techniques, safety mandates, and protocols as applied to anatomic and surgical pathology. Offered Spring/Summer.

**Prerequisite:** PAA 5050 with a minimum grade of B and PAA 7060 with a minimum grade of B and PAA 7250 with a minimum grade of B and PAA 7251 with a minimum grade of B and PAA 7252 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program; enrollment is limited to Graduate level students.

**Fees:** \$250

**PAA 7651 Surgical Pathology II Cr. 10**

Application of principles, theories, and clinical practices related to grossing (simple to complex) surgical dissections that address NAACLS competency levels associated with adult and pediatric surgical pathology techniques, specimen photomicrography and photomicrography, as well as develop techniques in the proper handling of specimens for frozen sectioning and histological processing through varied techniques within a modern instrumental histology laboratory, by following quality management techniques, safety mandates, and protocols as applied to anatomic and surgical pathology. Offered Winter.

**Prerequisite:** PAA 5050 with a minimum grade of B and PAA 7060 with a minimum grade of B and PAA 7250 with a minimum grade of B and PAA 7251 with a minimum grade of B and PAA 7252 with a minimum grade of B and PAA 7650 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program; enrollment is limited to Graduate level students.

**Fees:** \$250

**PAA 7652 Surgical Pathology III Cr. 9**

Application of principles, theories, and clinical practices related to grossing (medium to high complexity) surgical dissections that address NAACLS competency levels associated with adult and pediatric surgical pathology techniques, specimen photomicrography and photomicrography, as well as develop techniques in the proper handling of specimens for frozen sectioning and histological processing through varied techniques within a modern instrumental histology laboratory, by following quality management techniques, safety mandates, and protocols as applied to anatomic and surgical pathology. Offered Winter.

**Prerequisite:** PAA 7651 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program; enrollment is limited to Graduate level students.

**Fees:** \$250

**PAA 7700 Forensic and Clinical Autopsy Pathology Cr. 5**

Application of principles and technical procedures that address NAACLS competency levels associated with adult and pediatric autopsy as it relates to postmortem examination, dissection and evisceration techniques, toxicology specimen collection and processing, photomicrography of the body and of pertinent findings during the external and internal examination, as well as approaches associated with determining, and reporting, the cause, manner, and mechanism of death. Offered Every Term.

**Prerequisite:** PAA 6060 with a minimum grade of B and PAA 7060 with a minimum grade of B and PAA 7200 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program; enrollment is limited to Graduate level students.

**Fees:** \$150

**PAA 7890 Surgical and Forensic Pathology Seminar I Cr. 1**

Clinically based seminar course that integrates principles, theories, clinical practices and techniques relevant to grossing simple to mid-complexity surgical specimens. The course integrates evidence of ethical considerations to the pathologists' assistant practice, interprofessional activity, professional development and activism attained in the course of the program. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program; enrollment is limited to Graduate level students.

**PAA 7891 Surgical and Forensic Pathology Seminar II Cr. 2**

Clinically based capstone seminar course reviewing clinical and anatomical pathology and the application of principles, theories, clinical practices as it relates to surgical and forensic pathology, and in the research project of a clinical-based surgical specimen that highlights the complexity of the specimen and addresses contemporary issues to the pathologists' assistant practice as a result of said research. The course culminates with portfolio evidence of entry-level skills in the grossing of simple to complex surgical specimens, in the performance of clinical and forensic autopsies and with a board-style competency examination. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Pathologists'Assistant Program; enrollment is limited to Graduate level students.

**PAA 7900 Elective Clinical in Surgical and/or Forensic Pathology Cr. 1-5**

Remedial clinical rotation in surgical pathology or forensic autopsy pathology that fulfills cognitive assessments, content specific assignments or projects, and entry-level expectations of the program. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PAA 7901 Elective Independent Study in Surgical and/or Forensic Pathology Cr. 1-5**

Remedial independent study in surgical pathology and/or forensic autopsy pathology that fulfills cognitive assessments, content specific assignments or projects, indicative of entry-level expectations of the program. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## PAS - Physician Assistant Studies

**PAS 7000 Anatomy for Physician Assistants I Cr. 2**

Structural and functional anatomy of the human body relevant to physician assistant responsibilities. All major regions of body will be studied. Regional dissections; programmed instruction; lectures and demonstrations with emphasis on use of gross anatomy in physical diagnosis. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$376

**PAS 7001 Anatomy for Physician Assistants II Cr. 1**

Continuation of PAS 7000. Structural and functional anatomy of the human body relevant to physician assistant responsibilities. All major regions of body will be studied. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PAS 7010 Clinical Medicine I Cr. 3**

Introduction to etiology, manifestation, diagnosis, prevention and treatment of disease; includes: all major organ systems and disease entities. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$85

**PAS 7020 Clinical Medicine II Cr. 3**

Continuation of PAS 7010. Offered Yearly.

**Prerequisite:** PAS 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$85

**PAS 7030 Clinical Medicine III Cr. 4**

Continuation of PAS 7020. Offered Yearly.

**Prerequisite:** PAS 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$85

**PAS 7040 Patient Evaluation I Cr. 2**

The elicitation and recording of complete medical history, including a complete and comprehensive physical examination. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$351

**PAS 7050 Patient Evaluation II Cr. 2**

Continuation of PAS 7040. Offered Yearly.

**Prerequisite:** PAS 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$327

**PAS 7060 Patient Evaluation III Cr. 3**

Continuation of PAS 7050. Offered Yearly.

**Prerequisite:** PAS 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$695

**PAS 7070 Health Care Issues I Cr. 1**

Specialized topics in the care of patients, medical research, as well as issues concerning the delivery of health care to the public. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$60

**PAS 7080 Health Care Issues II Cr. 1**

Continuation of PAS 7070. Offered Yearly.

**Prerequisite:** PAS 7070 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$60

**PAS 7090 Health Care Issues III Cr. 1**

Continuation of PAS 7080. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$60

**PAS 7100 Pharmacology I Cr. 2**

Principles of pharmacologic action followed by review of major therapeutic agents in each clinical area. Major systems of the body as related to drugs and diseases. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$52

**PAS 7110 Pharmacology II Cr. 2**

Continuation of PAS 7100. Offered Yearly.

**Prerequisite:** PAS 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$55

**PAS 7115 Special Topics: Interprofessional Education Cr. 2**

This interprofessional course is for health professional student learners in the areas of advanced practice. The course allows health professional students to learn about, from and with each other, how each discipline contributes to the healthcare team, the importance of effective communication, the role of team collaboration and preparing health care professionals for collaborative practice with a focus on clinical decision making in interdisciplinary teams. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate, Medical or Professional level students.

**Equivalent:** MD4 8115, NUR 7115, PPR 7115, SW 7115



**PAS 7500 Pathophysiology I Cr. 1**

Dynamics of alterations in function in response to disease. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PAS 7510 Pathophysiology II Cr. 1**

Continuation of PAS 7500. Offered Yearly.

**Prerequisite:** PAS 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PAS 7520 Pathophysiology III Cr. 1**

Continuation of PAS 7510. Offered Winter.

**Prerequisite:** PAS 7510 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physician Assistant Studies; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PAS 7900 Physician Assistant Studies Directed Study Remediation Cr. 1-8**

This course serves to help students remediate for deficient academic or clinical competencies in the Physician Assistant Studies Program. It is student-driven with guidance and definitive expectations determined by the instructor. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 24 Credits**

**PAS 8000 Internal Medicine Rotation: Practicum Cr. 4**

Advanced training in internal medicine with particular emphasis on both inpatient and outpatient primary care. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$471

**PAS 8050 Surgery Rotation: Practicum Cr. 4**

Examination of patients with surgical disorders, arrangement and participation in selected surgical procedures and recommendations for further evaluation and care. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$161

**PAS 8100 Clinical Practicum I Cr. 7**

Students will rotate through one or two of the nine possible clinical modules (internal medicine, family practice, pediatrics, women's health, surgery, behavioral medicine, emergency medicine, elective I or elective 2). These modules will be composed of didactic course work along with preceptor-guided hands-on learning experiences in the clinical setting. Students will be educated on the evaluation, diagnosis, management and treatment of acute and chronic medical problems encountered in the inpatient and/or outpatient clinical setting. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$446

**Repeatable for 14 Credits**

**PAS 8200 Clinical Practicum II Cr. 7**

In this continuation of PAS 8100, the student will continue to rotate through one or two of the nine possible clinical modules (internal medicine, family practice, pediatrics, women's health, surgery, behavioral medicine, emergency medicine, elective I and elective 2). These modules will be composed of didactic course work along with preceptor-guided hands-on learning experiences in the clinical setting. Students will be educated on the evaluation, diagnosis, management and treatment of acute and chronic medical problems encountered in the inpatient and/or outpatient clinical setting. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$302

**Repeatable for 14 Credits**

**PAS 8250 Physician Assistant Studies Senior Seminar I Cr. 1**

The primary goal of the clinical year senior seminar is to provide the physician assistant student with resources and experiences in addition to clinical rotations. The additional work will help strengthen and augment the knowledge, skills, and behaviors students have acquired during the didactic and clinical phases of their education. The activities will serve as stepping stones towards the successful management of patients in a competent, comprehensive, and compassionate manner across varied disciplines, patient populations, and clinical settings. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PAS 8300 Clinical Practicum III Cr. 14**

Clinical Practicum III is a continuation of the required clinical modules during the student's clinical year. During this clinical practicum, students will experience 2 to 4 of the nine required modules (internal medicine, family practice, pediatrics, women's health, surgery, behavioral medicine, emergency medicine, elective I or elective 2). These modules will be composed of didactic course work along with preceptor-guided hands-on learning experiences in the clinical setting. Students will be educated on the evaluation, diagnosis, management and treatment of acute and chronic medical problems encountered in the inpatient and/or outpatient clinical setting. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$547

**PAS 8350 Physician Assistant Studies Senior Seminar II Cr. 1**

The primary goal of the clinical year senior seminar is to provide the physician assistant student with resources and experiences in addition to clinical rotations. The additional work will help strengthen and augment the knowledge, skills, and behaviors students have acquired during the didactic and clinical phases of their education. The activities will serve as stepping stones towards the successful management of patients in a competent, comprehensive, and compassionate manner across varied disciplines, patient populations, and clinical settings. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PAS 8400 Clinical Practicum IV Cr. 14**

Clinical Practicum IV is a continuation of the required clinical modules during the student's clinical year. During this clinical practicum, students will experience 2 to 3 of the nine required modules (internal medicine, family practice, pediatrics, women's health, surgery, behavioral medicine, emergency medicine, elective I or elective 2) plus a 4 week preceptorship. These modules will be composed of didactic course work along with preceptor-guided hands-on learning experiences in the clinical setting. Students will be educated on the evaluation, diagnosis, management and treatment of acute and chronic medical problems encountered in the inpatient and/or outpatient clinical setting. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$697

**PAS 8450 Physician Assistant Studies Senior Seminar III Cr. 1**

The primary goal of the clinical year senior seminar is to provide the physician assistant student with resources and experiences in addition to clinical rotations. The additional work will help strengthen and augment the knowledge, skills, and behaviors students have acquired during the didactic and clinical phases of their education. The activities will serve as stepping stones towards the successful management of patients in a competent, comprehensive, and compassionate manner across varied disciplines, patient populations, and clinical settings. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

## PCS - Peace and Conflict Studies

**PCS 2000 Introduction to Peace and Conflict Studies Cr. 3**

Introduction to the peace and conflict studies co-major. Survey, ranging from biology and conflict among animals to disputes involving the individual, the family, the neighborhood and region, the nation and global or international community. Definitions and approaches to peace. (Some sections linked to Peace and Justice Learning Community.) Offered Yearly.

**Equivalent:** HIS 2500, PS 2820

**PCS 2010 Topics in Peace and Conflict Studies Cr. 1-4**

Special topics relating to peace and conflict studies. Offered Every Term.

**Equivalent:** HIS 2520, PS 2830

**Repeatable for 12 Credits**

**PCS 2020 Science, Technology, and War Cr. 4**

Modern weapons, nuclear and otherwise are becoming increasingly available and dangerous; people with grievances seem eager to use them. Science and technology, as well as constraints of bureaucracy and society underpin weapons development and use, as technologies affect prospects and results of war and peace. History of humanity and its tools of war. Offered Yearly.

**Equivalent:** HIS 2510, PHY 2020, PS 2440

**PCS 2050 The Study of Non-Violence Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry Intellectual and social roots of non-violence and the practice of non-violence in various societies and people's life styles. Historical and political forces and movements related to non-violence. (Some sections linked to Peace and Justice Learning Community.) Offered Every Term.

**Equivalent:** HIS 2530, PS 2550, SOC 2050

**PCS 3100 Human Trafficking and Modern Slavery Cr. 3**

Utilizing a participatory interdisciplinary format, the course examines contemporary issues in globalization with particular focus on human trafficking. These are epic times, when the call for racial, gender and economic equity has never been more pronounced. As human rights come center stage, human trafficking becomes a core concern throughout the world. The class highlights the pertinent social, cultural, political, and economic causes, with an eye towards the anthropology and sociology of slavery and sex work. The class will consider evidence that inequalities, especially structural poverty, exacerbate modern slavery worldwide. Students will develop insight in policy analysis, history and forms of slavery, policy impact monitoring, and ethnographic skills. Offered Every Term.

**PCS 5000 Dispute Resolution Cr. 3**

Overview of the processes and actors in the field of dispute resolution including negotiation, mediation, arbitration, and conciliation. Offered Yearly.

**Equivalent:** CRJ 5994, PS 5890, PSY 5710

**PCS 5010 Community or International Internship Cr. 3**

Internship in dispute resolution, research, social service or international agencies in Detroit area, nationally, or abroad. Offered Every Term.

**Prerequisites:** PCS 2000 with a minimum grade of D-

**PCS 5100 Advanced Special Topics Cr. 3-4**

Topics may include: study of negotiating organizations and processes, advanced theory to practice applications, in-depth specialization. Offered for undergraduate credit only. Offered Intermittently.

**PCS 5999 Special Readings/Research Cr. 1-4**

Intensive study with faculty member on peace-related topic; may include study abroad projects. For co-majors and non-majors. Offered Every Term.

**Repeatable for 4 Credits**

**PCS 6000 Senior Seminar in Peace and Conflict Studies Cr. 3**

Students work with faculty on a semester research or creative project relevant to concepts studied in the program; serves as capstone program evaluative course. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to Undergraduate level students.

**PCS 6100 Introduction to Graduate Peace and Security Studies Cr. 3**

Survey of the peace and security studies fields at the graduate level. Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PS 6100

**PCS 7100 Peace Making: Regional, Technological, Transnational Perspectives Cr. 3**

The prerequisites for peaceful and secure borders and peace settlements. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PCS 7800 Graduate Practicum in Peace and Security Studies Cr. 3-4**

Field work or applied research in Peace and Security Studies. Offered Every Term.

**Prerequisite:** PCS 6100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

## PH - Public Health

**PH 2100 Introduction to Public Health Cr. 3**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry

Provides both an overview of the principles and practice of public health and basic information needed to understand and analyze a variety of individual-level and population-level health problems. This course is intended for students with no previous course work in public health. Offered Every Term.

**PH 2500 Race and Ethnic Disparities in Public Health Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

That racial and ethnic minorities have poorer health, worse socioeconomic status, and shorter life expectancies is well-documented in the public health literature. This course will examine the personal, community, social, and institutional structures that increase morbidity and mortality risk in these populations. Considerable attention is paid to the historical, political, social, and economic underpinnings of these inequalities. Rather than just continuing to document disparities, the class will emphasize the role health care providers, public health professionals, health policy, and community-based interventions can play in achieving health equity in racial and ethnic minorities. Offered Every Term.

### **PH 2550 MENA Public Health Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry

This global health course offers an investigation into the differing health attitudes, beliefs, behaviors as well as risk factors and health outcomes for persons in and from the Arab world. It offers a unique perspective on global health by comparing social determinants and health outcomes for persons living in the Arab world to Middle East, North African (MENA) populations in the US (and specifically in metro Detroit). Students will examine the roles of history, culture, geography, and health in the larger Arab world. These factors and cultural commonalities subsequently impact the health of Arab immigrants and refugees across the world and, specifically, in the United States. The course explores a range of social determinants of health including immigration history; geography; stigma; geopolitical impacts; as well as social, cultural, and religious determinants in order to provide foundational cultural competencies vital for understanding health in a global context. Offered Winter.

### **PH 3000 Public Health Administration Cr. 3**

The coronavirus pandemic, global warming and climate change, epidemics of gun violence and suicide, and soaring health care costs make this the perfect time to be studying the administration of public health. As public health problems have become more complex, so too have health care organizations and systems. This course will provide an overview of health care administration and management in the US with a systems perspective and global understanding. Offered Every Term.

### **PH 3050 Mental Health and Crime Cr. 3**

Provides a comprehensive overview of the issues and challenges located at the intersection of mental health/illness and the criminal justice system. Attention will be focused on a range of topics, including, but not limited to, the definition of mental illness, deinstitutionalization and criminalization of the mentally ill, the impact of mental illness on criminal proceedings, treatment/intervention effectiveness, and the reentry/reintegration of mentally ill individuals. Offered Intermittently.

**Equivalent:** CRJ 3050

### **PH 3100 Social and Behavioral Aspects of Public Health Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences  
Examines the social and behavioral aspects of health, illness, and health care, and help students develop a basic understanding of the societal factors that influence health status and public health interventions. Offered Every Term.

### **PH 3200 Introduction to Biostatistics Cr. 3**

Provides an introduction to statistical methods used in public health, biological, and medical research and covers elementary probability theory, basic concepts of statistical inference, sampling theory, regression and correlation methods, analysis of variance, and study design. In addition, the course will examine statistical applications in biomedicine, epidemiology, public health and the life sciences. Offered Every Term.

**Prerequisites:** PH 2100 with a minimum grade of C- and (MAT Permit to Reg ACT/SAT with a test score minimum of 4, Math Permit to Reg - (L1-L4) with a test score minimum of 4, STA 1020 with a minimum grade of C-, MAT 1800 with a minimum grade of C-, MAT 2010 with a minimum grade of C-, MAT 2020 with a minimum grade of C-, or STA 2210 with a minimum grade of C-)

### **PH 3300 Epidemiology Cr. 3**

Introduces the basic concepts of epidemiology as applied to public health problems. Emphasis is placed on the principles and methods of epidemiologic investigation, including the appropriate summaries, displays, and analysis of data, and the use of classical statistical and other methodological approaches to describe the health of populations. Offered Every Term.

**Prerequisites:** PH 2100 with a minimum grade of C- and (MAT Permit to Reg ACT/SAT with a test score minimum of 4, Math Permit to Reg - (L1-L4) with a test score minimum of 4, STA 1020 with a minimum grade of C-, MAT 1800 with a minimum grade of C-, MAT 2010 with a minimum grade of C-, MAT 2020 with a minimum grade of C-, or STA 2210 with a minimum grade of C-)

### **PH 3400 Health in All Policies Cr. 3**

Health in All Policies (HiAP) is a collaborative approach to governmental action that integrates public health considerations into policymaking across sectors to improve the health of all communities and people. Used widely around the world, HiAP recognizes that where people live, learn, work, and play determines to a large degree the quantity and quality of their lives. Beyond traditional medicine and health care, the HiAP framework underscores that policies and actions related to housing, education, transportation, food distribution, jobs and the economy (and more!) profoundly impact the health of individuals, families, and communities. This course will dive deeply into federal, state, and local applications of HiAP that offer plans to improve health outcomes and achieve health equity. Offered Fall.

### **PH 3410 Global Health Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences

Introduces students to problems of disease and disorder worldwide and looks at various efforts to define and address these problems through a social science perspective. Offered Every Term.

**Equivalent:** ANT 3410, GLS 3410

### **PH 3450 Advocating for Change in Public Health Cr. 3**

Public health professionals must effectively engage in advocacy work and civic engagement to bring about meaningful improvements and lasting change. Public health and medical professionals, non-profit leaders, and community members can all be powerful advocates for health. They advocate in health care institutions where they work and are treated, communities where they live, professional and research entities to which they belong, and the political and media systems that shape policy outcomes. Students will gain knowledge and skills needed to advocate for public health-related policies and change at the local, state, and federal levels. Offered Winter.

**Prerequisites:** PH 2100 with a minimum grade of C- and PH 3100 with a minimum grade of C-

### **PH 3500 Environmental Health Cr. 3**

Using a public health perspective, the course will provide students with an overview of the key areas of environmental health, and it will cover factors associated with the development of environmental health problems. Students will gain a system-level understanding of the interaction of individuals and communities with the environment, the potential impact of environmental agents on population, and specific applications of public health concepts to environmental health. Offered Every Term.

**PH 3550 Public Health and the City Cr. 3**

Introduces the field of medical geography, or the study of geographic aspects of health and disease. Students will also be introduced to the impact that city life has on health and healthcare in the US and internationally. They will gain an understanding of how geography as a discipline contributes to an understanding of health and health care in urban environments, and how social and economic contexts impact urban health. Mapping techniques will be utilized to examine the spatial patterns of disease and risk factors that may contribute to disease.

Offered Yearly.

**Equivalent:** US 3550

**PH 3600 Special Topics in Public Health Cr. 3**

Topics may include but are not limited to an examination of health in families, health in the workplace, health across the life course, health of urban communities, community health interventions, access to health care, and health services administration. Offered Intermittently.

**Repeatable for 6 Credits**

**PH 3700 Funding Public Health Cr. 3**

Funding Public Health introduces students to the ways that public health programs secure resources to expand and improve their services, reach vulnerable or marginalized populations, and address existing or emerging social conditions. The course centers on the most important public (e.g., US Department of Health and Human Services) and private funders (e.g., Robert Wood Johnson Foundation) of domestic public health programs, initiatives, and research. Students will also be introduced to other fundraising tools and techniques through which they might fill “funding gaps” with resources raised from corporations, groups and associations, as well as individual donors. Offered Fall.

**Prerequisites:** PH 2100 with a minimum grade of C- and PH 3100 with a minimum grade of C-

**PH 3750 Reproductive Health Cr. 3**

This course explores the subject of reproductive health using an interdisciplinary approach, including social, political, and biomedical perspectives. It covers gender differences in patterns of illness, delivery of health care, paying special attention to inequalities and disparities related to race, ethnicity, sexuality, and social class. That is, it will have a strong reproductive justice focus. We will also examine common intervention strategies in public health when dealing with reproductive health in local communities. Offered Intermittently.

**PH 3800 Law and Public Health Cr. 3**

This course will introduce students to the role of law as an important determinant of health outcomes. This course is organized using the CDC’s Public Health Law Program competency-based approach. Through constitutional and legal foundations, case studies and real-world examples, students will learn how the law is used as a public health tool. Special attention is paid to contemporary applications in public health law and the implications for bringing about health equity in vulnerable populations. Offered Yearly.

**PH 3900 LGBTQ Health Cr. 3**

Centers on LGBTQ voices and takes an intersectional socioecological approach to exploring social determinants of health, and a range of health outcomes and challenges in LGBTQ communities; and the implications for public health research, policy, and practice to improve LGBTQ health. Introduces students to key conceptual frameworks for understanding LGBTQ health across the lifespan and promoting health equity. Offered Yearly.

**Equivalent:** SOC 3900

**PH 4050 Crime and Public Health Cr. 3**

Introduces students to the interface between public health and criminal justice in the United States, focusing on different aspects of the relationship. It will first describe the newly emerged epidemiological criminology, and then analyze a variety of topics on crime and public health, including, but not limited to, the health of incarcerated populations, the health of criminal justice professionals, health consequences of crime and risk behaviors, public health and law, gangs and gang violence, mental health and substance abuse, environmental justice, and public health interventions with criminal justice populations. Offered Intermittently.

**Equivalent:** CRJ 4050

**PH 4100 Public Health Principles and Practice Cr. 2**

This required course examines practice-based approaches to improve public health. The focus will be on learning methods for community health improvement, from assessment to finding and implementing evidence-based public health interventions. Offered Every Term.

**Prerequisites:** PH 3100 with a minimum grade of C-, PH 3200 with a minimum grade of C-, PH 3300 with a minimum grade of C-, and PH 3500 with a minimum grade of C-

**Corequisite:** PH 4150

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Public Health or Public Health Honors.

**PH 4250 Interprofessional Education and Public Health Cr. 3**

More than 20 years ago, public health, medicine, nursing, pharmacy and dentistry professionals formed a collaborative to ensure that future professionals would be prepared to engage in a team-based approach to patient care. Today, more than 20 professional member associations have joined this effort. In this class, students will explore the unique and intertwined roles and responsibilities of health care providers; learn effective interprofessional communication strategies, ethics, and values; and learn how to establish high functioning multidisciplinary health care teams to improve patient outcomes. Offered Every Term.

**Prerequisites:** PH 3100 with a minimum grade of C-, PH 3200 with a minimum grade of C-, PH 3300 with a minimum grade of C-, and PH 3500 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Public Health or Public Health Honors.

**PH 4400 Quantitative Methods in Public Health Cr. 3**

This course provides students with a review of quantitative methodological approaches in public health. Students will analyze the benefits and costs of each methodological approach, and how to best apply each method in real-world settings. Students will also critically assess scientific literature in core areas of public health. The content and assignments for this course are designed to prepare students for the Capstone (PH 5100) and Practicum (PH 5150) courses. Offered Every Term.

**Prerequisites:** PH 3100 with a minimum grade of C-, PH 3200 with a minimum grade of C-, PH 3300 with a minimum grade of C-, and PH 3500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Public Health or Public Health Honors.



**PH 4500 Qualitative Methods in Community Public Health Cr. 3**

Qualitative methods in public health requires the systematic and intentional inclusion of community members, patients, affected populations, and/or partner organizations in participatory research and evaluation. Public health professionals must commit to building equitable, reciprocal partnerships between researchers and community members to resolve specific problems. Students in this class will learn the underlying theory and principles of qualitative research and community-based public health. Specific qualitative methodological techniques including one-on-one and motivational interviewing, ethnography, focus groups, and Photovoice will be discussed. Students will have a chance to design and engage in a qualitative field experience to practice these skills. Offered Every Term.

**Prerequisites:** PH 3100 with a minimum grade of C-, PH 3200 with a minimum grade of C-, PH 3300 with a minimum grade of C-, and PH 3500 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Public Health or Public Health Honors.

**PH 4600 Special Topics in Health Disparities Cr. 3**

Topics may include but are not limited to an examination of health disparities by race or ethnicity, gender, income, age, nationality, or residential location. Offered Intermittently.

**Repeatable for 6 Credits**

**PH 4650 Health Data Visualization Cr. 3**

Public health professionals must effectively distill and communicate complex data in order to change attitudes, beliefs, behaviors, and policies. Public health professionals must blend art and science to reach their intended audience and for these data visualizations to have their intended effect. In this undergraduate course, students will be introduced to the effective presentation of data. Students will ground their practical work in evidence-based knowledge of the field of public health, epidemiological principles, biostatistical data, and aesthetic sensibilities. As a result of this class, students will be able to produce and evaluate data visualizations for use in public health, medical, health care, non-profit, governmental, and other settings. Offered Winter.

**Prerequisites:** PH 3100 with a minimum grade of C-, PH 3200 with a minimum grade of C-, and PH 3300 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**PH 4900 Directed Study in Public Health Cr. 1-3**

This course enables students to earn academic credit for directed public health-related research work. Generally, students must already have established a mentored research position with a faculty member in Public Health or some other department, Medical School, or outside institution. Course requirements include directed readings and participation in public health research, under the direct supervision of a faculty member affiliated with the Department of Public Health in the College of Liberal Arts and Sciences. Offered Every Term.

**Repeatable for 3 Credits**

**PH 5100 Capstone Course in Public Health Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency  
This course provides a culminating, integrative curricular experience for Public Health students. As such, the course draws on students' prior training core and elective courses as well as "real world" experiences gained in the field. The Capstone course gives students a chance to reflect and integrate their training and experiences while developing their own individual point of view regarding the role of public health. The course grade will be determined by the completion of a capstone project consisting of several research and practice components submitted over the semester. Offered Every Term.

**Prerequisites:** PH 2100 with a minimum grade of C-, PH 3000 with a minimum grade of C-, PH 3100 with a minimum grade of C-, PH 3200 with a minimum grade of C-, PH 3300 with a minimum grade of C-, PH 3500 with a minimum grade of C-, and (PH 4400 with a minimum grade of C- or PH 4500 with a minimum grade of C-)

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Public Health or Public Health Honors.

**PH 5150 Public Health Practicum Cr. 3**

The culminating practicum experience course draws on students' prior training in the five core areas of public health at Wayne State (i.e., Social and Behavioral Aspects of Health; Health Administration, Management, and Policy; Biostatistics; Epidemiology; and Environmental Health). Students will have a structured, mentored opportunity to gain 'real world' field experience. Students are expected to focus on the application of theories and strategies to enhance population health. In the field, students can explore the critical roles health care providers, public health professionals, and effective interventions play in optimizing the health of communities. Through their completion of professional field work, individual and group assignments, and critical reflection, students will gain insight into the role preparedness, teamwork, and effective communication play in public health best practices. Offered Every Term.

**Prerequisites:** PH 2100 with a minimum grade of C-, PH 3000 with a minimum grade of C-, PH 3100 with a minimum grade of C-, PH 3200 with a minimum grade of C-, PH 3300 with a minimum grade of C-, PH 3500 with a minimum grade of C-, and (PH 4400 with a minimum grade of C- or PH 4500 with a minimum grade of C-)

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Public Health or Public Health Honors.

## PHA - Pharmacy

**PHA 4105 Pathophysiology 1 Cr. 3**

Advanced pathophysiologic concepts affecting the adult human using a research-based, system-focused approach, including etiology, pathogenesis and clinical manifestations of commonly found/seen altered health states. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 4125 Drug Literature Evaluation and Foundations of Research Cr. 3**

Critical evaluation of the medical literature and provision of foundational research skills. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 4205 Pathophysiology II Cr. 2**

Advanced pathophysiologic concepts affecting the adult human using a research-based, system-focused approach, including etiology, pathogenesis and clinical manifestations of commonly found/seen altered health states. Offered Winter.

**Prerequisite:** PHA 4105

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 4225 Principles of Pharmacotherapy I: Respiratory, Gastroenterology, Allergy, Ophthalmology Cr. 4**

Principles of medicinal chemistry, pharmacology, and therapeutics as applied to the treatment of gastroenterologic, pulmonary, ophthalmologic, and allergic disorders, and basic self-care. Offered Winter.

**Prerequisite:** PHA 4105

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$70

**PHA 4235 Pharmacotherapeutic Problem Solving I: Respiratory, Gastroenterology, Allergy, Ophthalmology Cr. 2**

Problem-based learning focusing on pathophysiology, pharmacology, medicinal chemistry and pharmacotherapeutics of respiratory, gastroenterologic, allergic, and ophthalmologic disorders, and basic self-care. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$85

**PHA 4395 Research Scholars: Research Development Cr. 2**

Development of basic foundations of research practices for students pursuing the Research Scholars path. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 5110 Pharmacogenomics Cr. 2**

Principles and applications of human genetics and genomics in drug therapy optimization, patient care, and counseling. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students with a class of PharmD Yr 2 or PharmD Yr 3; enrollment is limited to Professional level students.

**PHA 5115 Principles of Pharmacotherapy II: Cardiology, Nephrology Cr. 5**

Principles of medicinal chemistry, pharmacology, and therapeutics as applied to the treatment of cardiovascular and renal disease. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 5125 Principles of Pharmacotherapy III: Endocrinology, Gynecology, Urology Cr. 4**

Principles of medicinal chemistry, pharmacology, and therapeutics as applied to the treatment of endocrinologic, gynecologic, and urologic disorders. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 5135 Pharmacotherapeutic Problem Solving II :Nephrology, Cardiology, Endocrinology, Gynecology, Urology Cr. 2**

Problem-based learning focusing on pathophysiology, pharmacology, medicinal chemistry and pharmacotherapeutics of nephrologic, cardiologic, endocrinologic, and gynecologic conditions. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 5195 Research Scholars: Research Conduct Elective Cr. 1-4**

Conducting research project for students pursuing the Research Scholars path. Offered Every Term.

**Prerequisite:** PHA 4395

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Repeatable for 4 Credits**

**PHA 5215 Principles of Pharmacotherapy IV: Infectious Diseases Cr. 4**

The chemistry, pharmacology, and toxicology of anti-infective agents and the pathophysiology, microbiology, and therapeutics of infectious diseases. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 5225 Principles of Pharmacotherapy V: Neurology, Psychiatry Cr. 4**

Medicinal chemistry, pharmacology and therapeutics of neurologic and psychiatric disorders. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$70

**PHA 5235 Pharmacotherapeutic Problem Solving III: Infectious Diseases, Neurology, Psychiatry Cr. 2**

Problem-based learning focusing on pathophysiology, pharmacology, medicinal chemistry and pharmacotherapeutics of infectious, neurologic, and psychiatric diseases. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$85

**PHA 5280 Principles of Pharmacotherapy VIII Cr. 2-3**

Pharmacotherapeutic principles of special populations, men's and women's health, patient problem solving. Offered Winter.

**Corequisite:** PHA 5275

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PHA 6125 Principles of Pharmacotherapy VI: Oncology, Advanced Immunology Cr. 3**

Principles of medicinal chemistry, pharmacology, and therapeutics as applied to the treatment of oncologic and immunologic disorders Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$70

**PHA 6135 Pharmacotherapeutic Problem Solving IV: Oncology and Advanced Pharmacotherapeutics Cr. 3**

Problem-based learning focusing on pathophysiology, pharmacology, medicinal chemistry and pharmacotherapeutics of neoplastic disorders and advanced pharmacotherapeutics. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PHA 6235 Pharmacotherapeutic Problem Solving V: Drug Induced Diseases Cr. 2**

Problem-based learning focusing on pathophysiology, pharmacology, medicinal chemistry, and pharmacotherapeutics of drug-induced diseases. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$85

## PHC - Pharmacology

**PHC 5030 Individual Research in Pharmacology Cr. 2-5**

Direct participation in laboratory research into the ways drugs affect cell processes, under the supervision of a departmental faculty advisor. Introduction to experimental protocol and current related scientific literature. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHC 6500 Drugs and the Addictive Process Cr. 3**

Introduction to general principles of drug action; specific pharmacologic, toxicologic, and pathologic effects of abused drugs; bio-psycho-social bases for addiction. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHC 7010 Pharmacology Lecture Cr. 4**

Introductory presentation of drug actions on living tissue. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHC 7021 Advanced Health Assessment and Clinical Diagnosis Cr. 3**

This course will provide the registered nurse anesthesia student with the knowledge and advanced systematic focus on various body systems while completing a comprehensive health assessment for patients across the lifespan, including but not limited to adult, pediatric, geriatric, and obstetric patients. Students utilize critical thinking as well as diagnostic procedure results to interpret, analyze and provide differential diagnosis of common patient problems, while utilizing common assessment techniques for each body system. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**Equivalent:** AN 7010

**PHC 7031 Advanced Pharmacology I Cr. 3**

Discuss the chemistry, pharmacokinetics and pharmacodynamics of medications as pertaining to nurse anesthesia. Major drug categories pertaining to anesthesia practice, as well as drug therapies and classes pertinent to acute and chronic responses to anesthesia; indications, mechanisms, effects. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$15

**Equivalent:** AN 7100

**PHC 7032 Advanced Pharmacology II Cr. 3**

Discuss the chemistry, pharmacokinetics and pharmacodynamics of medications as pertaining to nurse anesthesia. Major drug categories covered include drug therapies and classes pertinent to acute and chronic responses to anesthesia, including indications, mechanisms, and effects. Also discuss effects of anesthetics in specialized populations such as geriatrics, obesity, obstetric, substance abuse and pediatric populations. Offered Winter.

**Prerequisites:** AN 7100 with a minimum grade of B or PHC 7031 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$15

**Equivalent:** AN 7110

**PHC 7221 Advanced Physiology I Cr. 3**

Discuss aspects of anatomy and physiology that are relevant to the science and practice of anesthesia. Topics are covered from cellular, tissue, organ, and systems perspective, and related to issues of advance nurse anesthesia practice. The focus of this course is to impart concepts of advanced physiology which are elemental to the safe practice of anesthesia. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** AN 7220

**PHC 7241 Advanced Physiology II Cr. 3**

Continuation of AN7240. Discuss further aspects of anatomy and physiology that are relevant to the science and practice of anesthesia, as well as pathologic processes. Topics are covered from cellular, tissue, organ, and systems perspective, and related to issues of advance nurse anesthesia practice. The focus of this course is to impart concepts of advanced physiology and pathophysiology which are elemental to the safe practice of anesthesia. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**Equivalent:** AN 7240

**PHC 7242 Pathophysiology Cr. 3**

Discuss the pathophysiologic changes associated with various disease processes. The focus of this course is to impart concepts of pathophysiology in the framework of the various body systems and disruptions in normal body functioning for individuals across the lifespan. Offered Winter.

**Prerequisite:** AN 7240 with a minimum grade of B or PHC 7241 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** AN 7241

**PHC 7410 Principles of Toxicology Cr. 3**

Basic concepts and principles of toxicology, including toxicity of major classes of chemicals (pesticides, solvents, metals) and organ systems (renal, immune, digestive, neuro and respiratory) affected. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 7011

**PHC 7501 Physics, Equipment, and Safety for Anesthesia Cr. 2**

Introduction to the basic principles of physics and their application to anesthesia. Focus on processes that ensure safe anesthesia practice. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$20

**Equivalent:** AN 7500

**PHC 7601 Regional Anesthesia Cr. 3**

This course discusses key components related to regional anesthesia practice and their application in the clinical arena which includes acute and chronic pain therapies. Spinal/epidural anesthesia, upper and lower extremity nerve blocks, truncal blocks are covered with special emphasis on anatomy, physiology, drugs and equipment. Ultrasound physics and its application in regional anesthesia is covered and applied in the Anesthesia Sim Lab environment. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$20

**Equivalent:** AN 7600

**PHC 7641 Research and Statistics Cr. 3**

This course will provide the nurse anesthesia student with the knowledge, skills, and abilities to perform extensive literature searches, critically appraise the available research evidence, synthesize information from diverse formats and sources, and cogently express understanding of complex concepts in both verbal and written forms. This course will also involve discussion, review and interpretation of basic and clinical biostatistics. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** AN 7640

**PHC 7650 Advanced Topics in Pharmacology Cr. 1-6**

Modules of instruction in sharply-defined areas of current research in pharmacology and related disciplines. Each module will cover fundamental concepts, essential knowledge base, research protocols and techniques, and future issues. Offered Every Term.

**Prerequisite:** PHC 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**PHC 7700 Recent Developments in Pharmacology Cr. 1-4**

Selected topics and readings in pharmacology. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PHC 7710 Individual Studies in Pharmacology Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Pharmacology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy or Master of Science degrees.

**Repeatable for 8 Credits**

**PHC 7730 Reproductive Sciences: Teratology Cr. 3**

Principles of the science of birth defects; focus on impact of environmental poisons, medicines, and drugs of abuse on developing germ cells, embryos and fetuses. Roles of pharmacological/toxicological, physiological (maternal, placental, and fetal), genetic and nutritional factors in the teratogenic response are examined. Texts and current readings. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PSL 7730

**PHC 7880 Anesthesia Seminar Cr. 1**

This course allows students to gain experience in critical reading of scholarly articles and case reports, including data analysis and interpretation and translation of research findings into evidence based practices. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** AN 7880

**Repeatable for 4 Credits**

**PHC 7890 Seminar Cr. 1**

Assigned readings and student presentation; faculty and outside speakers. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Pharmacology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy or Master of Science degrees.

**Repeatable for 12 Credits**

**PHC 7902 Ethics and Health Care Cr. 3**

This course serves as an advanced introduction to health care ethics, designed specifically for nurse anesthesia students. Ethical principles and personal values that shape professional practice and influence decision making will be expounded upon in the discussion of contemporary issues in health care. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** AN 7902

**PHC 7996 Research Cr. 1-20**

Special research topics in specified areas arranged with individual faculty members. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 30 Credits**

**PHC 8888 Survey of Research at the Chemistry Biology Interface Cr. 3**

The Chemistry Biology Interface course will teach students how to apply chemical approaches to study complete biological processes. It will commence with a basic overview of the biochemistry of biomolecules. Next, complex biological processes related to various diseases will be highlighted by introducing cell biology, model cells and organisms, and disease mechanisms. Finally, the course will highlight contemporary examples of how chemical methods are used to answer complex biological questions to show the value and innovation available by taking a multidisciplinary approach. The focus will be on development of skill sets that are applicable for research at the chemistry biology interface, rigor and transparency in data collection and analysis, and identification of cross-disciplinary research at Wayne State. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 8888, CHM 8888, PSC 8888, PSL 8888

**PHC 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PHC 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PHC 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHC 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHC 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHC 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHC 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHC 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHC 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHC 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## PHI - Philosophy

**PHI 1010 Introduction to Philosophy Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Survey of some major questions that have occupied philosophers throughout history, such as Does God exist? What is a good person? Do we have free will? Is the mind the same as the brain? What can we really know? Course will acquaint students with major figures both historical and contemporary. Offered Every Term.

**PHI 1020 Honors Introduction to Philosophy Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Honors Section, Philosophy Letters

Survey of some major questions that have occupied philosophers throughout history, such as Does God exist? What is a good person? Do we have free will? What can we really know? Course will acquaint students with major figures both historical and contemporary. Offered Intermittently.



**PHI 1050 Critical Thinking Cr. 3**

**Satisfies General Education Requirement:** Critical Thinking Competency Knowledge and skills relevant to the critical evaluation of claims and arguments. Topics will include: the formulation and identification of deductively and inductively warranted conclusions from available evidence; the assessment of the strengths of arguments; the assessment of consistency, inconsistency, implications, and equivalence among statements; the identification of fallacious patterns of inference; and the recognition of explanatory relations among statements. Offered Every Term.

**PHI 1070 Games, Risk, and Logic Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp Students develop quantitative reasoning skills such as statistical analysis and probabilistic reasoning. Topics covered include: logic games, statistical fallacies, calculations of probability, risk assessment, game theory, and how to evaluate decisions in business or personal action based on calculations of expected risk or utility. Offered Every Term.

**PHI 1100 Contemporary Moral Issues Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry, Philosophy Letters  
Critical discussion of contemporary moral issues including pornography, adultery, same-sex marriage, abortion, preferential treatment, obligations to the poor, capital punishment, terrorism, and others. Offered Every Term.  
**Repeatable for 9 Credits**

**PHI 1110 Ethical Issues in Health Care Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry, Philosophy Letters  
Survey of moral issues that arise in the practice of medicine and in pursuit of medical knowledge: abortion, euthanasia, experimentation on human subjects, informed consent, rights to health care, genetic engineering, the concepts of death, health and disease. Offered Every Term.

**PHI 1120 Professional Ethics Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters  
Critical examination of moral issues in the workplace, including: discrimination and preferential treatment, sexual harassment, whistleblowing, privacy and disclosure, corporate social responsibility. Offered Every Term.

**PHI 1130 Environmental Ethics Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters  
Is the natural world something to be valued in itself, or is its value exhausted by the uses human beings derive from it? This course introduces students to some of the major views on the subject, anthropocentric (human-centered) and non-anthropocentric. Offered Yearly.  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PHI 1150 AI and Data Ethics Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
A survey of ethical issues related to artificial intelligence and data collection, such as moral rights for AI, algorithmic bias, data privacy, and the use of AI in war. Offered Every Term.

**PHI 1200 Life and Death Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters  
Central philosophical and religious questions about life and death, and the enterprise of answering these questions through reasoning and argument. What is it to be alive, and to die? Do we cease to exist when we die, or might we continue to exist in an afterlife following our deaths? Should we fear or regret the fact that we will die someday, or should we be indifferent to it? Why is killing wrong? Is it always wrong to prevent a life from beginning, or to help someone bring his or her own life to an end? What, if anything, makes a life meaningful? We will study the ways in which these questions are raised and answered in a selection of classic and contemporary works of philosophy and literature. Offered Yearly.

**PHI 1500 Race, Sex, and Religion Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry  
An examination of contemporary ethical issues and controversies involving race, sex, religion, and related topics such as gender identity, class, economic injustice, immigration, and sexual orientation. Offered Fall, Winter.

**PHI 1900 Comparative Religion Cr. 3**

Origins of religion: its social importance, its structure (fetish, totemism, myth, ritual). Pre-historic religion and the major religious traditions. Offered Every Other Year.  
**Equivalent:** NE 1900

**PHI 2100 Ancient Greek Philosophy Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters  
Introduction to the Western philosophical tradition from its origins in Ancient Greece. Readings from the pre-Socratics, Plato, and Aristotle. Offered Every Other Year.

**PHI 2110 Philosophy of the Scientific Revolution and Enlightenment Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters  
A survey of philosophical views concerning knowledge, reality, scientific evidence, naturalism, and morality from some of the major European philosophers of the period of the Scientific Revolution and Enlightenment, such as Descartes, Spinoza, Leibniz, Locke, Berkeley, Hume, and Kant. Offered Every Other Year.

**PHI 2140 Ancient Greek Medicine and Psychology Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry  
An examination of early Greek psychology and medical practice and theory. Figures and schools of thought covered include Homer, Democritus, Empedocles, the cult of Asclepius, the Hippocratics, Plato, and Aristotle. Offered Every Other Year.

**PHI 2150 Chinese Philosophy Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry  
Main philosophical traditions from ancient to pre-modern China. Readings from Confucius, Mo Tzu (Mohism), Mencius, Hsun Tzu, Han Fei Tzu (Legalism) and Chu Hsi (Neo-Confucianism). Offered Winter.  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PHI 2170 Islamic and Near Eastern Philosophy Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry  
An examination of major figures and movements in Islamic and Near Eastern philosophy. Offered Every Other Year.  
**Equivalent:** NE 2170

**PHI 2320 Introduction to Ethics Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

An introduction to some classical and modern views concerning such questions as: What determines the rightness and wrongness of actions? What is the nature of moral reasoning? What constitutes a moral life? Offered Every Term.

**PHI 2330 Introduction to Social and Political Philosophy Cr. 3**

Introduction to the basic issues of political philosophy, such as the nature of the state, the ways of justifying its power and authority over its citizens; a philosophical analysis of central concepts like those of freedom, justice, and equality. Selected readings from some of the following: Plato, Aristotle, Hobbes, Locke, Rousseau, Mill, Marx, and Rawls. Offered Every Other Year.

**PHI 2360 Feminist Philosophy Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Diversity Equity Incl Inquiry

An examination of work by feminist philosophers. Offered Winter.

**Equivalent:** GSW 2360

**PHI 2390 Philosophy of Human Rights Cr. 3**

Addresses central issues in the philosophy of human rights, including questions about the foundation, content, and application of human rights. Examines different approaches to the foundation of human rights and considers whether human rights have one unique foundation or plural foundations. Offered Every Other Year.

**PHI 2400 Introduction to the Philosophy of Religion Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Religious beliefs provide subject matter for philosophical study; for example, Are the traditional arguments for the existence of God credible? Does the existence of evil conflict with a belief in God's omnipotence and omnibenevolence? What is the value of religious experience? Offered Intermittently.

**PHI 2550 Introduction to Philosophy of Science Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Distinguishing science from non-science; how scientific knowledge is established; what constitutes scientific progress; whether science is cumulative; the place of science in the enterprise of knowledge and rational belief. Offered Every Other Year.

**PHI 2650 Minds and Machines Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry

Central examples of these questions and proposed answers: Is our mind just a piece of software that our brain is running? Can AI exercise moral agency? Are minds physical things? Are we much less rational than we think? How can we understand each other's minds? Can there be laws in psychology? What is consciousness, and can it be studied scientifically? We will address these and other questions via the work of philosophers, psychologists and cognitive scientists. Offered Winter.

**Equivalent:** PSY 2650

**PHI 2850 Introductory Symbolic Logic Cr. 3**

The logic of propositions; the general logic of predicates and relations. Offered Yearly.

**Equivalent:** LIN 1850

**PHI 2860 Honors Introductory Symbolic Logic Cr. 3**

See LIN 1850 / PHI 2850. Offered Yearly.

**Equivalent:** LIN 1860

**PHI 3270 Foundations of Law Cr. 3**

The legal system we live under commands, forbids, punishes, and defines responsibilities and harm. Common-sense morality: what is it, and what is its relation to law? Statutory interpretation: do judges create new law? Punishment: why do we have it, and what rights do the accused have? What is the legal concept of harm and responsibility? Offered Every Other Year.

**PHI 3450 Existentialism Cr. 3**

Examines major philosophical views and figures in the Existentialist tradition, such as Sartre, Camus, Heidegger, de Beauvoir, Buber, Ortega y Gasset, Kierkegaard, and Nietzsche. Offered Every Other Year.

**PHI 3500 Theory of Knowledge Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

The distinction between knowledge and belief is germane to every field of inquiry. What is the difference between knowledge and belief? Do we know anything at all? If so, how? Are we ever in a position of being certain about beliefs pertaining to an objective world? Is our belief in an objective world based on our subjective experiences? Offered Every Term.

**PHI 3550 Metaphysics Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Survey and examination of some of the enduring questions of metaphysics concerning the nature of reality. Topics include: the nature of physical objects, abstract entities, the concepts of time and change, the relation between mind and body, causation, the nature of metaphysics. Offered Yearly.

**PHI 3600 Space, Time, and the Philosophy of Physics Cr. 3**

Survey of some principal problems concerning the concepts of space and time and their relation to physical theories. Topics include: our knowledge of the geometric features of the world, the existence of space and time, time without change, the passage of time, the philosophical foundations and implications of Einstein's Special Theory of Relativity, and the explanation of motion and the General Theory of Relativity. No prior knowledge of modern physics will be presupposed. Offered Every Other Year.

**Prerequisites:** PHI 2000-6XXX with a minimum grade of D-

**PHI 3650 The Philosophy of Work Cr. 3**

This course examines philosophy of work and the relationship between political economy and the ethics of work. It explores the definition and meaning of work in different historical and cultural contexts and then focuses on practical philosophy and applied ethics with respect to work, occupational choice, and social responsibility. It also considers the tensions between work and individual rights and work and social justice. Offered Yearly.

**Equivalent:** ELR 3650

**PHI 3700 Philosophy of Art Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

What are art works? Why are they so moving? What is the nature of the experience they offer? This course introduces the student to some of the schools of thought on these issues. It also attempts to deal with the specific natures of the various artistic media, such as: drama, literature, film, painting, photography, music and opera. Offered Every Term.

**PHI 3800 Topics in Philosophy Cr. 1-3**

Topics to be announced in Schedule of Classes . Offered Intermittently.

**Repeatable for 6 Credits**

**PHI 4890 Honors Thesis Cr. 3**

Directed research project that culminates in the student's honors thesis. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Honors College.

**PHI 4995 Research Training Cr. 1-4**

Students engage in an independent research project and learn research methods in Philosophy under the supervision of a faculty member.

Offered Every Term.

**Repeatable for 4 Credits**

**PHI 5050 Advanced Symbolic Logic Cr. 4**

Formal, extensive treatment of first-order predicate logic with emphasis on the notions of a formal logical language and truth in a model; the logic of identity; definite descriptions; brief introductions to set theory and the metatheory of propositional and first-order logic; some additional advanced topics to be selected by the instructor. Offered Yearly.

**Equivalent:** LIN 5050

**PHI 5210 Philosophy of Race and Racism Cr. 4**

An examination of philosophical approaches to the study of race and racism, including the metaphysics of race and the epistemology of racism and ignorance. Offered Every Other Fall.

**Prerequisites:** PHI 2000-6XXX with a minimum grade of D-

**PHI 5230 Philosophy of Science Cr. 4**

Intensive investigation and discussion of special topics or particular authors in the philosophy of science. Offered Yearly.

**Prerequisites:** 1 of (PHI 2400, PHI 5630, PHI 5640, PHI 2550, PHI 3500, PHI 3600, PHI 5230, PHI 5500, PHI 5530, PHI 5550, or PHI 5570)

**PHI 5240 Social and Political Philosophy Cr. 4**

Selected topics and readings from major social and political philosophers. Possible readings include Hobbes, Locke, J.S. Mill, Rawls, Simmons, Pateman, Frederick Douglass, and Charles Mills. Offered Every Other Year.

**Prerequisites:** PHI 2000-ZZZZ with a minimum grade of C (may be taken concurrently)

**PHI 5250 Justice and Rights in Health Care Cr. 4**

This course is centered around the general question: What does justice require of a society in terms of providing health care to its members? It examines classic philosophical theories of justice including egalitarianism, libertarianism, and Rawls' justice as fairness, before turning to the implications of these theories for health care access. Questions include: Does justice require providing universal health care? Is it compatible with offering different health care plans to different persons, or does justice require everyone have the same health care? How do issues of fairness in health care access relate to various forms of oppression in society, such as racism, classism, and sexism? Offered Fall.

**Prerequisites:** PHI 2000-ZZZZ with a minimum grade of C (may be taken concurrently)

**PHI 5260 Philosophy of Sex and Gender Cr. 3**

Explores ethical and conceptual issues surrounding sex, gender, and sexual orientation. Specific topics include conceptual analysis of sex, gender, and sexual orientation; sexual perversion, natural law, consent, marriage, adultery, "casual" sex, polygamy and polyamory, prostitution, and pornography. Offered Every Other Year.

**PHI 5270 Philosophy of Law Cr. 4**

Intensive investigation and discussion of special topics or particular authors in the philosophy of law. Possible readings include Austin, Hart, Fuller, Finnis, Martin Luther King, Jr., R. Dworkin, Scalia, J.S. Mill, and Shiffrin. Offered Every Other Year.

**PHI 5280 History of Ethics Cr. 4**

A survey and discussion of historically important moral philosophers from Plato to Mill. Offered Every Other Year.

**Prerequisites:** PHI 2000-6XXX with a minimum grade of D-, CLA 1010 with a minimum grade of D-, or PS 1010-1030 with a minimum grade of D-

**PHI 5290 Free Will and Moral Responsibility Cr. 4**

Exploration of the nature of, and relationship between, free will and moral responsibility. Questions include: What is free will? Is free will required for moral responsibility? Are freedom and responsibility compatible with determinism (the claim that the initial state of the universe plus the physical laws of nature determine everything that happens)? Does our practice of holding one another responsible reveal the nature of moral responsibility? Offered Fall.

**Prerequisites:** PHI 2000-ZZZZ with a minimum grade of C (may be taken concurrently)

**PHI 5300 Foundations of Ethics Cr. 4**

Twentieth century moral philosophers in the analytic tradition, with focus on debates in moral realism, moral epistemology, and the "Why be moral?" question; includes such philosophers as Moore, Stevenson, Foot, Mackie, Blackburn, Gibbard, Parfit, Korsgaard, and Railton. Offered Every Other Year.

**Prerequisites:** PHI 2000-6XXX with a minimum grade of D-, CLA 1010 with a minimum grade of D-, or PS 1010-1030 with a minimum grade of D-

**PHI 5330 Ethics, Law, and Health Cr. 4**

Provides a foundational understanding of how to use the tools of philosophy (especially ethics) to critically assess complex issues concerning public health, medical care, health law, and health policy. Covers foundations of normative ethical theory and of legal theory, and uses that understanding to address ethical and legal questions about discrete practical issues dealing with health. Offered Yearly.

**Prerequisites:** PHI 2000-ZZZZ with a minimum grade of C (may be taken concurrently)

**PHI 5340 Special Topics in Philosophy of Law Cr. 3-4**

An examination of special topics, issues, controversies in philosophy related to the law, legal theory, and public policy. Offered Intermittently.

**PHI 5350 Logical Systems I Cr. 4**

Metaresults concerning formal systems of sentential and first-order logics; soundness, completeness; independence of axioms; introduction to recursive functions; formalization of elementary arithmetic; discussion of Godel's incompleteness theorem and Church's Theorem. Offered Every Other Year.

**Prerequisites:** MAT 5600 with a minimum grade of C-, PHI 2850 with a minimum grade of C-, PHI 2860 with a minimum grade of C-, PHI 5050 with a minimum grade of C-, or MAT 5420 with a minimum grade of C-  
**Equivalent:** MAT 5350

**PHI 5400 The Presocratics and Sophists Cr. 4**

Selected readings on topics in philosophers who preceded or were contemporaneous with Socrates (7th - 5th centuries B.C.E), such as Heraclitus, Parmenides, Zeno, Democritus. Offered Intermittently.

**Prerequisites:** PHI 2000-6XXX with a minimum grade of D-, CLA 1010 with a minimum grade of D-, or PS 1010-1030 with a minimum grade of D-

**PHI 5410 Plato Cr. 4**

Selected readings on topics in Plato. Offered Every Other Year.

**Prerequisites:** PHI 2000-6XXX with a minimum grade of D-, CLA 1010 with a minimum grade of D-, or PS 1010-1030 with a minimum grade of D-

**PHI 5420 Aristotle Cr. 4**

Selected readings on topics in Aristotle. Offered Every Other Year.

**PHI 5450 British Empiricism Cr. 4**

Topics concerning Locke, Berkeley or Hume. Offered Intermittently.

**Prerequisites:** PHI 2000-6XXX with a minimum grade of D-, CLA 1010 with a minimum grade of D-, or PS 1010-1030 with a minimum grade of D-

**PHI 5460 Kant Cr. 4**

Selected topics or readings in Kant's philosophy. Offered Every Other Year.

**Prerequisites:** PHI 2000-6XXX with a minimum grade of D-, CLA 1010 with a minimum grade of D-, or PS 1010-1030 with a minimum grade of D-

**PHI 5500 Topics in Metaphysics Cr. 4**

Intensive investigation and discussion of special topics or particular authors in metaphysics. Offered Yearly.

**PHI 5510 Special Topics in the History of Philosophy Cr. 3,4**

An examination of special topics, issues, figures, and schools of thought in the history of philosophy. Offered Every Other Year.

**Repeatable for 8 Credits**

**PHI 5530 Topics in Epistemology Cr. 4**

Intensive investigation and discussion of special topics or particular authors in the theory of knowledge. Offered Intermittently.

**PHI 5550 Philosophy of Mind Cr. 4**

Intensive investigation and discussion of special topics or particular authors concerned with the nature and status of the mental and theories about the mental. Offered Every Other Year.

**PHI 5570 Philosophy of Language Cr. 4**

Intensive investigation and discussion of philosophical problems concerning meaning, truth, and the nature of language. Offered Every Other Year.

**Prerequisites:** 1 of (PHI 2400, PHI 5630, PHI 5640, PHI 2550, PHI 3500, PHI 3600, PHI 5230, PHI 5500, PHI 5530, PHI 5550, or PHI 5570)

**Equivalent:** LIN 5570

**PHI 5630 Twentieth Century Analytic Philosophy I Cr. 4**

Major works, movements, and writers in the analytic tradition in the twentieth century up to the 1940s, such as Frege, Russell, Moore, the early Wittgenstein, Carnap, Ayer. Offered Intermittently.

**Prerequisites:** 1 of (PHI 2400, PHI 5630, PHI 5640, PHI 2550, PHI 3500, PHI 3600, PHI 5230, PHI 5500, PHI 5530, PHI 5550, or PHI 5570)

**PHI 5800 Special Topics in Philosophy Cr. 2-4**

Topics and prerequisites to be announced in Schedule of Classes. Offered Intermittently.

**Repeatable for 8 Credits**

**PHI 5900 Advanced Undergraduate Research Seminar in Philosophy Cr. 4**

Advanced seminar in Philosophy. Topics and instructor vary by semester. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students in the Department of Philosophy.

**Repeatable for 12 Credits**

**PHI 5993 Writing Intensive Course in Philosophy Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Disciplinary writing assignments under direction of faculty member. Must be selected in conjunction with a course designated as a corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Directed practice in rewriting assignments for the concurrently-elected course, for the purpose of perfecting skills in philosophical writing. Does not count toward the course minimums for the major or minor. Required for all majors. Offered Every Term.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and (PHI 3000-5040 (may be taken concurrently), PHI 5200-5340 (may be taken concurrently))

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PHI 6990 Directed Reading Cr. 1-6**

Intensive investigation by student on topic chosen by student in consultation with instructor. Offered Every Term.

**Repeatable for 12 Credits**

**PHI 6999 Certificate Essay Direction Cr. 1-4**

Individual direction for writing Certificate Essay in Health Care Ethics. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the GC in Health Care Ethics program.

**Repeatable for 4 Credits**

**PHI 7790 Seminar in Philosophy of Language Cr. 4**

Offered Intermittently.

**Prerequisites:** PHI 5000-5999

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PHI 7800 Seminar in Philosophy: Special Topics Cr. 4**

Offered Intermittently.

**Prerequisites:** PHI 5000-5999

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PHI 7810 Seminar in History of Philosophy Cr. 4**

Study of a philosopher or period. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PHI 7840 Seminar in Ethics Cr. 4**

Offered Intermittently.

**Prerequisites:** PHI 5000-5999

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PHI 7850 Seminar in Epistemology Cr. 4**

Offered Intermittently.

**Prerequisites:** PHI 5000-5999

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PHI 7860 Seminar in Metaphysics Cr. 4**

Offered Intermittently.

**Prerequisites:** PHI 5000-5999

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PHI 7910 Preliminary Research I Cr. 2**

Provides students with the opportunity to lay the groundwork for an article of publishable quality in a specialized area of philosophy. With the help of a faculty mentor, students will develop independent philosophical research skills, evaluate current scholarship in a specialized area of philosophy, identify potential article topics in that area, develop an original idea that advances current scholarship in that area, and start the process of writing an article of publishable quality by completing at least a first draft of that article. To enroll in this course, a student must have completed 32 credits toward the Ph.D., must obtain permission from a faculty member in philosophy to serve as the mentor of the course, and must obtain the written consent of the graduate director. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.



### **PHI 7920 Preliminary Research II Cr. 2**

Builds on Preliminary Research I, providing students with the opportunity to lay the groundwork for a second article of publishable quality in a specialized area of philosophy. With the help of a faculty mentor, students will continue to develop independent philosophical research skills, evaluate current scholarship in a specialized area of philosophy, identify potential article topics in that area, develop an original idea that advances current scholarship in that area, and start the process of writing an article of publishable quality by completing at least a first draft of that article.

To enroll in this course, a student must obtain permission from a faculty member in philosophy to serve as the mentor of the course and must obtain the written consent of the graduate director. Offered Every Term.

**Prerequisite:** PHI 7910

**Restriction(s):** Enrollment is limited to Graduate level students.

### **PHI 7990 Directed Study in Philosophy Cr. 1-4**

Directed study for graduate students in Philosophy. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

### **PHI 7999 Master's Essay Direction Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 99 Credits**

### **PHI 8999 Master's Thesis Direction and Research Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

### **PHI 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

### **PHI 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

### **PHI 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHI 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

### **PHI 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHI 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

### **PHI 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHI 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

### **PHI 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## **PHY - Physics**

### **PHY 1001 Perspectives in Physics, Biomedical Physics, and Astronomy Cr. 1**

Survey of educational and career paths including specializations in basic research and applied disciplines; recommended for entering students and those considering or beginning a major or minor concentration. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

### **PHY 1020 Conceptual Physics: The Basic Science Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences, Quantitative Experience Comp

This course will introduce key concepts of classical and modern physics. Students will be able to demonstrate knowledge of physics concepts starting from the foundations of measurements, describing motion, and Newton's Laws. Building on these foundations, they will be able to explore the concepts of conserved quantities, states of matter, temperature and heat, waves and sound, electricity and magnetism, optics, atomic physics, nuclear physics, relativity, elementary particles, and cosmology. About three fourths of the class will be spent in lecture and one-fourth discussing questions and problems at the end of each chapter. Along with PHY 1020, students may take a one-credit laboratory course, PHY 1021. Students will need to do arithmetic and simple algebra roughly at the level of high school that is required by the university for you to graduate. Offered Every Term.

### **PHY 1021 Conceptual Physics Laboratory Cr. 1**

The Conceptual Physics Laboratory is designed as introduction to research methods in physics. Students learn how to design experiments to answer physical questions, learn how to summarize and present their methods, findings and conclusions, and how to present their conclusions both in written and oral form. Students also learn how to discuss their findings and be able to defend their conclusions. Offered Every Term.

**Corequisite:** PHY 1020

**Fees:** \$25

### **PHY 2020 Science, Technology, and War Cr. 4**

Modern weapons, nuclear and otherwise are becoming increasingly available and dangerous; people with grievances seem eager to use them. Science and technology, as well as constraints of bureaucracy and society underpin weapons development and use, as technologies affect prospects and results of war and peace. History of humanity and its tools of war. Offered Yearly.

**Equivalent:** HIS 2510, PCS 2020, PS 2440

### **PHY 2130 Physics for the Life Sciences I Cr. 4**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

Introduction to physics for students in the life sciences, preparing for medicine, dentistry, pharmacy and health sciences and for general Liberal Arts and Sciences students. Covers motion, forces, energy, diffusion, fluids, thermal physics with many biological examples. Satisfies General Education laboratory requirement only when taken concurrently with PHY 2131. No credit after PHY 2170. Offered Every Term.

**Corequisite:** PHY 2131

### **PHY 2131 Physics for the Life Sciences Laboratory Cr. 1**

Laboratory experiments in fluid mechanics, diffusion and biophysics. Satisfies General Education laboratory requirement only when taken concurrently with PHY 2130. Offered Every Term.

**Corequisite:** PHY 2130

**Fees:** \$25

**PHY 2140 Physics for the Life Sciences II Cr. 4**

Second part of introduction to physics for students in the life sciences, students preparing for medicine, dentistry, pharmacy and health sciences and for general Liberal Arts and Sciences students. Covers thermodynamics, electric fields, oscillations, waves and optics. No credit after PHY 2180. Offered Every Term.

**Prerequisites:** PHY 2130 with a minimum grade of C-

**Corequisite:** PHY 2141

**PHY 2141 Physics for the Life Sciences Laboratory Cr. 1**

Laboratory experiments in electric fields, fluids, optics and spectroscopy. Offered Every Term.

**Corequisite:** PHY 2140

**Fees:** \$25

**PHY 2170 University Physics for Scientists I Cr. 4**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

For students specializing in physics, biology, chemistry, mathematics or engineering. Statics, kinematics, dynamics, energy and linear momentum, rotational kinematics and dynamics, angular momentum, solids and fluids, vibrations and wave motion, thermodynamics. Satisfies General Education Laboratory Requirement only when taken concurrently with PHY 2171. No credit after PHY 2175. Offered Every Term.

**Prerequisites:** MAT 1800 with a minimum grade of C- and MAT 2010 with a minimum grade of C- (may be taken concurrently)

**Corequisite:** PHY 2171

**PHY 2171 University Physics Laboratory Cr. 1**

Laboratory experiments in statics, kinematics, dynamics, energy and linear momentum, rotational kinematics and dynamics, angular momentum, simple harmonic motion, optics, continuum mechanics, thermodynamics. Satisfies General Education laboratory requirement only when taken concurrently with PHY 2170. Offered Every Term.

**Corequisite:** PHY 2170

**Fees:** \$25

**PHY 2175 University Physics for Engineers I Cr. 4**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

For students specializing in engineering. Statics, kinematics, dynamics, energy and linear momentum, rotational kinematics and dynamics, angular momentum, solids and fluids, vibrations and wave motion, thermodynamics. No credit after PHY 2170. Offered Every Term.

**Prerequisites:** MAT 2010 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**PHY 2180 University Physics for Scientists II Cr. 4**

Electric forces and electric fields, electrical energy, capacitance, current, resistance, direct current circuits, magnetism, induced voltage and inductance, AC circuits, electromagnetic waves, geometric and wave optics. No credit after PHY 2185. Offered Every Term.

**Prerequisites:** MAT 2010 with a minimum grade of D-, MAT 2020 with a minimum grade of D- (may be taken concurrently), and PHY 2170 with a minimum grade of C-

**Corequisite:** PHY 2181

**PHY 2181 University Physics Laboratory II Cr. 1**

Laboratory experiments in electrostatics, currents and circuit elements, magnetic fields, magnetic induction, AC circuits, electromagnetic waves, interference of waves. Offered Every Term.

**Corequisite:** PHY 2180

**Fees:** \$25

**PHY 2185 University Physics for Engineers II Cr. 4**

Electric forces and electric fields, electrical energy, capacitance, current, resistance, direct current circuits, magnetism, induced voltage and inductance, AC circuits, electromagnetic waves, geometric and wave optics. No credit after PHY 2180. Offered Every Term.

**Prerequisites:** (PHY 2170 with a minimum grade of C- or PHY 2175 with a minimum grade of C-), MAT 2010 with a minimum grade of D-, and MAT 2020 with a minimum grade of D- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**PHY 2210 General Physics Laboratory Cr. 1**

Consult departmental undergraduate academic advisor prior to registering for this course. No credit after PHY 1020 if taken for four credits. Offered Every Term.

**Prerequisite:** PHY 1020 with a minimum grade of D-

**Fees:** \$15

**PHY 3100 The Sounds of Music Cr. 4**

**Satisfies General Education Requirement:** Natural Scientific Inquiry, Physical Sciences

For music majors and other students interested in the physical foundations of the production, perception, and reproduction of musical sounds. Makes only limited use of simple mathematics. Includes topics such as wave properties, loudness levels and the human ear, hearing loss, tone quality, frequency and pitch, musical intervals and tuning, room acoustics, the production of sound by various musical instruments, and electronic reproduction of music. Meets General Education Laboratory Requirement. Offered Fall.

**Fees:** \$25

**PHY 3300 Introductory Modern Physics Cr. 3**

For physics, chemistry, engineering, mathematics majors and other interested students. Introduction to relativity, quantum phenomena, atomic structure, quantum mechanics, condensed matter physics, quantum optics, nuclear physics, elementary particles, and anti-particles. Offered Fall, Winter.

**Prerequisites:** ((PHY 2130 with a minimum grade of C- and PHY 2131 with a minimum grade of C-) or (PHY 2170 with a minimum grade of C- and PHY 2171 with a minimum grade of C-)), ((PHY 2140 with a minimum grade of C- and PHY 2141 with a minimum grade of C-) or (PHY 2180 with a minimum grade of C- and PHY 2181 with a minimum grade of C-)), and MAT 2020 with a minimum grade of C-

**Corequisite:** PHY 3310

**PHY 3310 Introductory Modern Physics Laboratory Cr. 2**

Laboratory course to accompany PHY 3300. Hands-on experience in logical and rigorous analysis of phenomena of modern physics. Offered Fall, Winter.

**Prerequisites:** ((PHY 2140 with a minimum grade of D- and PHY 2141 with a minimum grade of D-) or (PHY 2180 with a minimum grade of D- and PHY 2181 with a minimum grade of D-)) and (PHY 3300 with a minimum grade of C (may be taken concurrently) or PHY 5015 with a minimum grade of C (may be taken concurrently))

**Fees:** \$25

**PHY 3500 Introduction to Thermal and Fluid Physics Cr. 3**

Provides an introduction to physics of gases, fluids and other states of matter for majors in physics and other science, technology and mathematics fields. builds on a knowledge of the mechanics in introductory physics courses. Topics covered include: thermodynamic equilibrium; energy, work and heat; Ideal gas and kinetic theory; entropy; free energy; Maxwell relations; chemical equilibria; equilibrium between liquids, solids and gases; heat transport and kinetics; and properties of fluids. Familiarity with mathematics at the level of Calculus 3 is recommended. Offered Yearly.

**Prerequisite:** PHY 2170 with a minimum grade of C- or PHY 2180 with a minimum grade of C-

**PHY 3700 Mathematics for Biomedical Physics Cr. 4**

Training in specific applied topics of mathematics for biomedical physics majors. Offered Fall.

**Prerequisites:** ((PHY 2130 with a minimum grade of C-, PHY 2140 with a minimum grade of C-, PHY 2131 with a minimum grade of C-, and PHY 2141 with a minimum grade of C-) or (PHY 2170 with a minimum grade of C-, PHY 2180 with a minimum grade of C-, PHY 2171 with a minimum grade of C-, and PHY 2181 with a minimum grade of C-)) and MAT 2020 with a minimum grade of C- (may be taken concurrently)

**PHY 3750 Introduction to Computational Methods Cr. 1**

Introduction to the principles of computer programming with MATLAB or similar software. In addition to learning applications of the software, there will be opportunities for independent or group projects of interest to students. Offered Fall.

**Prerequisites:** ((PHY 2130 with a minimum grade of C- and PHY 2140 with a minimum grade of C-) or (PHY 2170 with a minimum grade of C- and PHY 2180 with a minimum grade of C-)) and MAT 2020 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment is limited to students with a major in Biomedical Physics.

**PHY 3990 Directed Study Cr. 1-4**

Primarily for students who wish to continue in a field beyond material covered in regular courses, or who wish to study material not covered in regular courses, including certain research participation. Offered Every Term.

**Repeatable for 4 Credits**

**PHY 4700 Introduction to Biomedical Physics Cr. 4**

Basic and applied physical concepts used in biology, human anatomy, and physiology, as well as in medical diagnosis and treatment. Offered Winter.

**Prerequisites:** ((PHY 2130 with a minimum grade of C- and PHY 2140 with a minimum grade of C-) or (PHY 2170 with a minimum grade of C- and PHY 2180 with a minimum grade of C-)), PHY 3700 with a minimum grade of C-, and MAT 2020 with a minimum grade of D-

**PHY 5010 Astrophysics and Stellar Astronomy Cr. 3**

Electromagnetic radiation and matter; solar characteristics; stellar distances; magnitudes; spectral classification; celestial mechanics; binary stars; stellar motions, structure and evolution; compact and variable stars; Milky Way Galaxy and interstellar medium; galaxies and clusters of galaxies; quasars; Hubble's Law; cosmology. Offered Every Other Winter.

**Prerequisites:** PHY 3300 with a minimum grade of C-

**Equivalent:** AST 5010

**PHY 5015 Non-classical Physics for Educators Cr. 3**

Development of relativity and quantum mechanics. Emphasis on nuclear physics and elementary particles. Required math: algebra and trigonometry. Offered for undergraduate credit only. Offered Winter.

**Prerequisites:** PHY 2130 with a minimum grade of D- and PHY 2140 with a minimum grade of D-

**PHY 5100 Methods of Theoretical Physics I Cr. 3**

Introduction to mathematical tools used in advanced courses in physics. Offered Fall.

**Prerequisites:** MAT 2030 with a minimum grade of C- and PHY 2180 with a minimum grade of C-

**PHY 5200 Classical Mechanics I Cr. 4**

Introduction to fundamental ideas: Newton's laws, notions of momentum, angular momentum, kinetic and potential energy, mechanical energy, conservation laws, friction and retardation forces, oscillations, resonances, gravitation, and introduction to the Lagrangian formalism. Offered Fall.

**Prerequisites:** PHY 2180 with a minimum grade of C-

**PHY 5210 Classical Mechanics II Cr. 3**

Accelerated reference frames, centrifugal and Coriolis forces, rigid body dynamics, motion of tops and gyroscopes, Lagrange's equations, constraints, Lagrange multipliers, general central force problem, stability of orbits, relativistic mechanics. Offered Winter.

**Prerequisite:** PHY 5200 with a minimum grade of C- and MAT 2150 with a minimum grade of C-

**PHY 5340 Optics Cr. 3**

Electromagnetic radiation; geometrical, physical, and modern optics. Offered Winter.

**Prerequisites:** (PHY 2140 with a minimum grade of C- and MAT 2030 with a minimum grade of C-), (PHY 2180 with a minimum grade of C- and PHY 3700 with a minimum grade of C-), (PHY 2140 with a minimum grade of C- and PHY 3700 with a minimum grade of C-), or (PHY 2180 with a minimum grade of C- and MAT 2030 with a minimum grade of C-)

**PHY 5341 Optics Laboratory Cr. 2**

Experiments involving geometrical, physical, and quantum optics. Offered Winter.

**Prerequisites:** ECE 5760 with a minimum grade of C (may be taken concurrently) and PHY 5340 with a minimum grade of C (may be taken concurrently)

**Fees:** \$25

**PHY 5460 Lasers for Medical Applications Cr. 3**

Summarizes the wealth of recent research on the principles, technologies and application of lasers in diagnostics, therapy and surgery. Includes an overview of optics, optical components used in a typical laser, key principles of lasers and radiation interactions with tissue. The respective types of the laser (solid state, gas, dye, and semiconductor) are reviewed to provide an understanding of the wide diversity, and therefore, the large possible choice of these devices for a specific diagnosis, treatment, or surgery. Offered Winter.

**Equivalent:** ME 5465

**PHY 5620 Electronics and Electrical Measurements Cr. 3**

Theory of amplifier circuits, operational amplifiers, oscillators, digital electronics, analog and digital measurements. Offered Fall.

**Prerequisites:** ((PHY 2180 with a minimum grade of C- and PHY 2181 with a minimum grade of C-) or (PHY 2140 with a minimum grade of C- and PHY 2141 with a minimum grade of C-)) and PHY 5621 with a minimum grade of C- (may be taken concurrently)

**Corequisite:** PHY 5621

**PHY 5621 Electronics and Electrical Measurements Laboratory Cr. 2**

Laboratory measurements related to amplifier circuits, operational amplifiers, oscillators, and digital electronics. The lab will also cover analog and digital measurements and will require a final project. Offered Fall.

**Corequisite:** PHY 5620

**Fees:** \$25

**PHY 5750 Biological Physics Cr. 4**

Introduction to applications of physics to molecular biology. Offered Fall.

**Prerequisites:** PHY 3700 with a minimum grade of C- and PHY 4700 with a minimum grade of C-

**PHY 5990 Directed Study Cr. 1-3**

Primarily for students who wish to continue in a field beyond material covered in regular courses, or who wish to study material not covered in regular courses, including certain research participation. Offered Every Term.

**Repeatable for 6 Credits**

**PHY 6080 Survey of Astrophysics Cr. 3**

This course provides an introduction to high-energy astrophysics with a focus on X-ray astronomy. We will cover the physics of X-ray emission and absorption in an astrophysical context, as well as discussing observational techniques used to detect X-rays. Bright X-ray emitting objects are some of the most extreme in the universe, and we will discuss objects including neutron stars, black holes, cataclysmic variables, supernovae and supernovae remnants, and galaxy clusters. Offered Every Other Year.

**Prerequisites:** PHY 6080 with a minimum grade of C-

**Equivalent:** AST 6080

**PHY 6250 Survey of Condensed Matter Physics Cr. 3**

This course introduces upper-level undergraduate majors in physics and other science, technology and mathematics fields to the discoveries and research methods of condensed matter physics. Modern condensed matter physics research is experiencing rapid growth in various areas such as superconductivity, magnetism, and topological matter. Important advances critically depend on a good understanding of the basic concepts. This course is prepared to help you start by introducing the basic properties of solids and other condensed matter. Methods of electromagnetic and quantum theory are applied to study the electronic and topological properties, magnetism, the Hall effect, superconductivity, and the optical properties of solids and condensed matter. The course builds on a knowledge of electromagnetic theory as studied in courses like PHY 6600. Offered Every Other Winter.

**Prerequisites:** PHY 6600 with a minimum grade of C-

**PHY 6260 Survey of Elementary Particle Physics Cr. 3**

Introduces students to the discoveries and research methods of elementary particle physics. Topics covered can include elementary particle dynamics; relativistic kinematics; symmetries, introduction to quantum field theory; Feynman calculus; gauge theories; the standard model and proposed modifications; experimental evidence; survey of experimental methods, detector, accelerators and colliders. Methods of quantum mechanics are introduced, including scattering theory; spin; symmetry groups; bound states; time dependent and time independent perturbation theory. Builds on a knowledge of quantum physics studied in courses like PHY 6400. Offered Every Other Fall.

**Prerequisite:** PHY 6400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PHY 6270 Survey of Nuclear Physics Cr. 3**

Introduces upper-level undergraduate majors in physics and other science, technology and mathematics fields to the discoveries and research methods of nuclear physics. Nuclear physics topics covered can include nuclear collisions; nuclear structure: liquid drop model, shell model; nucleon-nucleon interaction; quarks and the strong interaction; quark-gluon plasma; alpha, beta and gamma decay; and nuclear fusion. Nuclear astrophysics topics can include compact objects; stellar nucleosynthesis; nucleosynthesis in supernovae, neutron star collisions, and the big bang. Methods of quantum mechanics are introduced, including scattering theory; Born approximation; eikonal approximation; Glauber Model; WKB theory; time dependent and time independent perturbation theory. Builds on a knowledge of quantum physics studied in PHY 6400 and is in-part a sequel to that course. Offered Every Other Fall.

**Prerequisite:** PHY 6400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PHY 6290 Survey of Biophysics Cr. 3**

Introduction to modern biophysics with emphasis on a physical understanding of biological structure and function; biological activity; biology and light; energy, thermodynamics and statistical mechanics in biology; and techniques of experimental biophysics. Offered Yearly.

**Prerequisite:** PHY 3300 with a minimum grade of C- and (MAT 2030 with a minimum grade of C- or PHY 3700 with a minimum grade of C-) and (PHY 4700 with a minimum grade of C- or PHY 3500 with a minimum grade of C-)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PHY 6400 Quantum Physics I Cr. 4**

This course introduces upper-level undergraduate majors in physics and other science, technology and mathematics fields to the methods of quantum mechanics. Topics covered will include operators and their eigenfunctions; quantization rules; solution of Schrödinger equation in 1- and 3-dimensions; angular momentum; spin; bosons and fermions; and time-independent perturbation theory. The course builds on a knowledge of modern physics as studied in introductory courses such as PHY 3300. Mathematical methods will be introduced for application to specific quantum mechanics problems. These include: Linear algebra; boundary value problems in ordinary differential equations; separation of variables in partial differential equations; Fourier transforms; orthogonal functions; Laplacian in spherical and cartesian coordinates; Legendre Functions and Spherical Harmonics; operators in Hilbert space. Offered Winter.

**Prerequisites:** PHY 3300 with a minimum grade of C- and MAT 2150 with a minimum grade of C-

**PHY 6410 Quantum Physics II Cr. 3**

Applications of quantum mechanics: atoms in electric and magnetic fields, multielectron atoms, molecules, quantum statistics, solids (band structure, magnetic properties), nuclei, fundamental forces and standard model. Offered Fall.

**Prerequisites:** PHY 6400 with a minimum grade of C-

**PHY 6450 Introduction to Material and Device Characterizations Cr. 4**

Lecture/laboratory; introduction to analytic and measurement techniques for characterizing and evaluating materials, especially for potential applicability in sensor and integrated devices. Techniques include diffraction and microscopy methods, electron spectroscopies, and electrical, optical and magnetic measurements. Offered for graduate credit only. Offered Winter.

**Prerequisites:** PHY 7050 with a minimum grade of C (may be taken concurrently), ECE 5500 with a minimum grade of C (may be taken concurrently), or ECE 5550 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$60

**PHY 6480 Introduction to Quantum Computing Cr. 3**

Serves as an introduction to quantum computing and brings together students with different backgrounds in mathematics, physics, chemistry, and computer science to foster interdisciplinary connections in the areas of quantum computing and quantum information. A strong background in linear algebra over the complex numbers as well as differential and integral calculus is required. Familiarity with quantum physics and complexity theory will be helpful, but it is not required. Offered Fall.

**Equivalent:** MAT 6480

**PHY 6500 Thermodynamics and Statistical Physics Cr. 4**

Laws of thermodynamics, thermodynamic equilibrium, applications of kinetic theory of gases, basic introduction to classical and quantum statistical description of physical systems with large numbers of particles. Offered Fall.

**Prerequisites:** PHY 5100 with a minimum grade of C- and PHY 3300 with a minimum grade of C-



**PHY 6570 Smart Sensor Technology I: Design Cr. 3**

Introduction to various types of sensors and the design of basic analog VLSI circuit building blocks. Offered Winter.

**Prerequisites:** PHY 2185 with a minimum grade of C- or PHY 2180 with a minimum grade of C-

**Equivalent:** BME 6470, ECE 6570

**PHY 6600 Electromagnetic Fields I Cr. 4**

This course introduces upper-level undergraduate majors in physics and other science, technology and mathematics fields to the methods of electricity and magnetism. Topics covered will include electrostatics; solution of the Laplace equation; electric current; magnetic field of steady currents; electromagnetic induction; Maxwell Equations; and electromagnetic waves. The course builds on a knowledge of electromagnetic phenomena as studied in introductory courses such as PHY 2180. Mathematical methods will be introduced for application to specific electromagnetism problems, including spherical and cylindrical coordinates; vector calculus in 2 and 3 dimensions; Stokes and divergence integral theorems; solution of Laplace and Wave equations by separation of variables; uniqueness of solutions for linear PDE of Elliptic and Hyperbolic type; boundary and initial value problems; scalar and vector potentials. Offered Fall.

**Prerequisites:** PHY 5200 with a minimum grade of C- and MAT 2150 with a minimum grade of C-

**PHY 6610 Electromagnetic Fields II Cr. 3**

Continuation of PHY 6600: Maxwell equations, electromagnetism and relativity, optics, wave guides and transmission lines, radiation of EM waves. Offered Winter.

**Prerequisite:** PHY 6600 with a minimum grade of C-

**PHY 6750 Applied Computational Methods Cr. 2**

Development of concepts learned in PHY 3750 or PHY 3310 for computer applications in physics research, including applications in theoretical physics, data fitting, image analysis, and integration with experimental equipment. There will be opportunities for independent as well as group projects. Offered Fall.

**Prerequisite:** PHY 3750 with a minimum grade of C- or PHY 3310 with a minimum grade of C-

**PHY 6780 Research Methods in Biomedical Physics Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Introduction to laboratory experience in biomedical physics research. Capstone course for biomedical physics majors. Offered Winter.

**Prerequisites:** PHY 3700 with a minimum grade of C- and PHY 4700 with a minimum grade of C-

**PHY 6850 Modern Physics Laboratory Cr. 2**

**Satisfies General Education Requirement:** Writing Intensive Competency Techniques and experiments in physics of atoms, atomic nuclei, molecules, the solid state and other areas that have advanced our modern understanding of physics. Offered Winter.

**Prerequisites:** PHY 3300 with a minimum grade of C-

**Fees:** \$25

**PHY 6860 Computational Physics Cr. 3**

Introduction to use of computers to model physical systems; description of techniques in numerical analysis including linear algebra, integration, algebraic and differential equations, data analysis and symbolic algebra. Offered Fall.

**Prerequisites:** PHY 3310 with a minimum grade of C- or PHY 5100 with a minimum grade of C-

**PHY 6991 Special Topics Cr. 1-4**

Topics and prerequisites for each section to be announced in Schedule of Classes. More than one section may be elected in a semester. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**PHY 6992 Physics Graduate Teaching Assistant Training Cr. 1**

Students solve and discuss problems from calculus-based general physics courses in front of their peers and instructor, enhancing their ability to analyze, interpret and present the material in a clear, informative way. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 6995 Professional Development Seminar in Physics Cr. 2**

Introduction to the conduct, skills and ethics of a professional physicist or astronomer. Topics include: critical reading of scientific literature; research ethics and professional conduct; introduction to modern research topics in physics and research in the department of physics and astronomy; careers in physics and astronomy; scientific and proposal writing; and teamwork. Offered Yearly.

**Repeatable for 4 Credits**

**PHY 7050 Survey of Condensed Matter Physics Cr. 3**

This course introduces graduate students to the discoveries and research methods of condensed matter physics. Modern condensed matter physics research is experiencing rapid growth in various areas such as superconductivity, magnetism, and topological matter. Important advances critically depend on a good understanding of the basic concepts. This course is prepared to help you start by introducing the basic properties of solids and other condensed matter. Methods of electromagnetic and quantum theory are applied to study the electronic and topological properties, magnetism, the Hall effect, superconductivity, and the optical properties of solids and condensed matter. The course builds on a knowledge of electromagnetic theory as studied in courses like PHY 6600. Offered Winter.

**Prerequisite:** PHY 6600 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7060 Survey of Elementary Particle Physics Cr. 3**

This course introduces graduate students to the discoveries and research methods of elementary particle physics. Topics covered can include elementary particle dynamics; relativistic kinematics; symmetries, introduction to quantum field theory; Feynman calculus; gauge theories; the standard model and proposed modifications; experimental evidence; survey of experimental methods, detector, accelerators and colliders. Methods of quantum mechanics are introduced, including scattering theory; spin; symmetry groups; bound states; time dependent and time independent perturbation theory. The course builds on a knowledge of quantum physics studied in courses like PHY 6400. Offered Every Other Fall.

**Prerequisite:** PHY 6400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7070 Survey of Nuclear Physics Cr. 3**

This course introduces graduate students to the discoveries and research methods of nuclear physics. Nuclear physics topics covered can include nuclear collisions; nuclear structure: liquid drop model, shell model; nucleon-nucleon interaction; quarks and the strong interaction; quark-gluon plasma; alpha, beta and gamma decay; and nuclear fusion. Nuclear astrophysics topics can include compact objects; stellar nucleosynthesis; nucleosynthesis in supernovae, neutron star collisions, and the big bang. Methods of quantum mechanics are introduced, including scattering theory; Born approximation; eikonal approximation; Glauber Model; WKB theory; time dependent and time independent perturbation theory. The course builds on a knowledge of quantum physics studied in courses like PHY 6400. Offered Every Other Fall.

**Prerequisite:** PHY 6400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7080 Survey of Astrophysics Cr. 3**

This course provides an introduction to high-energy astrophysics with a focus on X-ray astronomy. We will cover the physics of X-ray emission and absorption in an astrophysical context, as well as discussing observational techniques used to detect X-rays. Bright X-ray emitting objects are some of the most extreme in the universe, and we will discuss objects including neutron stars, black holes, cataclysmic variables, supernovae and supernovae remnants, and galaxy clusters. Offered Every Other Year.

**Prerequisites:** PHY 3300 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7090 Survey of Biophysics Cr. 3**

Introduction to modern biophysics with emphasis on a physical understanding of biological structure and function; biological activity; biology and light; energy, thermodynamics and statistical mechanics in biology; and techniques of experimental biophysics. Offered Yearly.

**Prerequisites:** 3 of (MAT 2030 or PHY 3700), PHY 3300, and (PHY 4700 or PHY 3500)

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7110 Methods of Theoretical Physics II Cr. 3**

Complex variables and their applications. Homogeneous and inhomogeneous differential equations. Special functions such as gamma functions, Bessel functions, Legendre functions, Hermite functions and Laguerre functions. Fourier series. Offered Fall.

**Prerequisite:** PHY 5100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7200 Advanced Mechanics Cr. 3-4**

Variational principles, central forces, transformation theory, Hamilton-Jacobi theory. Offered Winter.

**Prerequisite:** PHY 5210 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7400 Quantum Mechanics I Cr. 3**

Physical and mathematical principles of quantum mechanics. Schrodinger equation and its applications. Spin and angular momentum in quantum mechanics. The WKB approximation. Perturbation theory for time-independent and time-dependent cases. Offered Fall.

**Prerequisites:** PHY 6410 with a minimum grade of C and PHY 7110 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7410 Quantum Mechanics II Cr. 3**

Scattering theory. Partial wave expansion and perturbation theory. Bound states. Symmetry principles and conservation laws. The path integral formalism. Entanglement. Quantum computation. Charged particles in electromagnetic fields. Quantum theory of radiation. Relativistic one-particle equations Offered Winter.

**Prerequisite:** PHY 7400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7500 Statistical Mechanics Cr. 4**

Classical and quantum statistical mechanics and applications. Offered Fall.

**Prerequisite:** PHY 6500 with a minimum grade of C and PHY 7400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7550 Advanced Condensed Matter Physics: Solid State Cr. 3**

Current topics in condensed matter physics, including electronic band structure, magnetism, superconductivity, nanophysics, and the optical properties of solids. Offered Every Other Fall.

**Prerequisite:** PHY 7050 with a minimum grade of C and PHY 7110 with a minimum grade of C and PHY 7400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7560 Advanced Condensed Matter Physics: Soft Matter Cr. 3**

Current topics in condensed matter physics, including the building blocks, structures, physical properties, and phase transitions in a variety of complex fluid systems such as simple liquids and liquid mixtures, colloids, polymers, liquid crystals, amphiphiles, and soft matter in living organisms. Offered Every Other Winter.

**Prerequisite:** PHY 7050 with a minimum grade of C and PHY 7110 with a minimum grade of C and PHY 7400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7580 Smart Sensor Technology II: Characterization and Fabrication Cr. 4**

Integration of ongoing research in integrated technology of smart sensors. Design of smart sensor devices using computer simulation. Fabrication of smart sensor. Offered Spring/Summer.

**Prerequisite:** PHY 6570 with a minimum grade of B- or ECE 6570 with a minimum grade of B- or BME 6470 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$50

**Equivalent:** BME 7470, ECE 7570

**PHY 7600 Electromagnetic Theory I Cr. 3**

Microscopic and macroscopic Maxwell's equations, special relativity, Lagrangian and Hamiltonian formulation of EM theory, energy-momentum tensor, conservation laws, radiation, scattering, applications. Offered Winter.

**Prerequisite:** PHY 6610 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7850 Data Analysis Techniques Cr. 3**

Foundations in probability and statistics used in physics, biophysics and astronomy, an extensive discussion of the notions of statistical and systematic uncertainties, data correction techniques, and basic Monte Carlo techniques. Offered Yearly.

**Prerequisite:** MAT 2030 with a minimum grade of C or PHY 6850 with a minimum grade of C or PHY 6750 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 7990 Directed Study Cr. 1-3**

Application forms available in department office. Primarily for graduate students in physics who wish to study material not covered in regular courses. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**PHY 7996 Research in Physics Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PHY 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**PHY 8800 Advanced Nuclear Physics Cr. 3**

Research topics in nuclear physics such as: relativistic heavy ion physics, nuclear/nucleon models, and many body theory. Covers both theory and experimental methods. Offered Every Other Winter.

**Prerequisite:** PHY 7070 with a minimum grade of C and PHY 7110 with a minimum grade of C and PHY 7410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 8810 Advanced Particle Physics Cr. 3**

Advanced elementary particle physics including weak, electromagnetic, and strong interactions. Rudiments of experimental devices and techniques at level appropriate to both experimentally- and theoretically-oriented students. Offered Every Other Fall.

**Prerequisite:** PHY 7060 with a minimum grade of C and PHY 7110 with a minimum grade of C and PHY 7410 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 8850 Quantum Theory of Fields I Cr. 3**

Introduction to quantum field theory, classical and path integral quantization of scalar, spinor, and vector fields, gauge theories, interactions and Feynman rules, modal field theories, Hubbard model, introduction to renormalization Suitable for both students of theory and experiment in the fields of nuclear, particle, and condensed matter physics and astrophysics. Offered Every Other Fall.

**Prerequisite:** PHY 7110 with a minimum grade of C and PHY 7410 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 8860 Quantum Theory of Fields II Cr. 3**

Symmetry and symmetry breaking. Goldstone theorem and Higgs effect, renormalization group, collective phenomena, superfluids and superconductivity, the Standard Model of electroweak interactions, effective field theories. Appropriate for students in fields of nuclear, particle, condensed matter physics and astrophysics. Offered Every Other Winter.

**Prerequisite:** PHY 8850 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 8991 Special Topics Cr. 1-3**

Topics and prerequisites for each section to be announced in Schedule of Classes . More than one topic may be elected in a semester. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PHY 8995 Colloquium Cr. 1**

Must be elected every semester by all graduate physics students. Lectures given by external visitors and graduate faculty. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PHY 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PHY 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHY 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHY 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PHY 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PHY 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## POL - Polish

**POL 1010 Elementary Polish I Cr. 4**

Development of practical skills in understanding, reading, speaking and writing Polish; emphasis on fundamental communication skills. Offered Fall.

**Fees:** \$5

**POL 1020 Elementary Polish II Cr. 4**

Continuation of POL 1010. Development of practical skills in understanding, reading, speaking and writing Polish; emphasis on fundamental communication skills. Offered Winter.

**Prerequisites:** POL 1010 with a minimum grade of D-

**Fees:** \$5

**POL 2010 Intermediate Polish Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Further development of Polish language and cultural proficiency through listening, reading, speaking and writing activities, and examination of Polish culture. Completion of this course fulfills the General Education requirement for foreign language and culture. Offered Fall.

**Prerequisites:** POL 1020 with a minimum grade of D-

**Fees:** \$5

**POL 2030 Polish Conversation Cr. 1**

Development of Polish oral language skills through intensive speaking and listening practice. Offered Intermittently.

**Prerequisites:** POL 2010 with a minimum grade of D-

**Repeatable for 4 Credits**

**POL 2035 Polish Conversation II Cr. 1**

Students develop speaking and listening comprehension skills discussing a variety of topics including work, leisure time, pets, living arrangements, cooking, fashion, and shopping. Particular attention is paid to expressing opinions and arguing a point. Offered Intermittently.

**Prerequisites:** POL 1020 with a minimum grade of D-

**POL 2060 Composition and Conversation Cr. 4**

For students with rudimentary knowledge of Polish. Vocabulary and aspects of grammar not discussed in the previous courses, practiced through oral and written composition and translation exercises. Offered Every Other Winter.

**Prerequisites:** POL 2010 with a minimum grade of D-

**Repeatable for 8 Credits**

**POL 2710 Survey of Polish Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry

Introductory cultural survey from beginnings of Polish state to present. Polish society and cultural developments analyzed in comparative contexts. Offered Fall, Winter.

**POL 3000 Polish Grammar and Usage Cr. 4**

Comprehensive review of Polish grammar; proper usage, vocabulary expansion. For intermediate or advanced-level students, including heritage speakers. Offered Every Other Year.

**Prerequisites:** POL 2010 with a minimum grade of D-

**POL 3030 Language Skills: Advanced Speaking and Writing Cr. 2-4**

Original texts and audio-visual materials used to further knowledge of Polish language. Special attention paid to vocabulary enrichment, colloquial usage and idioms needed for achieving independent expression in the Polish language. Offered Every Other Fall.

**Prerequisites:** POL 2060 with a minimum grade of D-

**POL 3060 Medical Polish I Cr. 1**

One of two online Polish language courses designed to teach vocabulary used in the medical field. POL 3060 focuses on the human musculoskeletal and digestive systems, their diseases and treatments, medical facilities and doctor-patient interactions. Offered Fall, Winter.

**Prerequisites:** POL 1020 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**POL 3061 Medical Polish II Cr. 1**

One of two online Polish language courses designed to teach vocabulary used in the medical field. POL 3061 focuses on the human cardiovascular and respiratory systems, their diseases and treatments, on dentistry, and on doctor-patient interactions. Offered Fall, Winter.

**Prerequisites:** POL 1020 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**POL 3111 Digital Storytelling and Ethnic Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry Students will learn about the ethnic, racial, and cultural history of Detroit and how to document elements of that history. This course introduces students to both theoretical and practical concepts around digital storytelling, drawing on extensive theoretical scholarship about placemaking, experiencing place, and the social production of heritage that spans the disciplines of anthropology, historical archaeology, heritage studies, historic preservation, media studies, and mobilities. Students will learn the practical steps involved in creating digital stories and will be introduced to best practices in multimedia development as discussed in the literature in the field of instructional technology. They will also explore the cultural, ethical and technological considerations involved in creating and disseminating digital stories. They will then create their own short digital story, which they will be able to share with the website Ethnic Layers of Detroit. Offered Yearly.

**Equivalent:** ANT 3111, GLS 3111, RUS 3111

**POL 3410 New Soil, Old Roots: The Immigrant Experience Cr. 3**

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry Armenian, German, Jewish, Polish, Russian and Ukrainian immigration to the United States, its effects on the cultures (language, literature, religion, politics, music, art and theatre) of these ethnic groups and its influence upon American culture. Offered Fall.

**Equivalent:** ARM 3410, GER 3410, RUS 3410, SLA 3410

**POL 3750 Polish and Yugoslavian Cinema Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Two national cinemas introduced through milestone films and lesser-known cinematic gems produced before and after the fall of communism. Offered Every Other Winter.

**Equivalent:** SLA 3750

**POL 3800 Topics in Slavic Studies Cr. 3**

Special topics relating to Slavic languages, literatures and cultures, such as drama, the Gulag, and contemporary culture. Offered Yearly.

**Equivalent:** RUS 3810, SLA 3800

**Repeatable for 9 Credits**

**POL 3990 Directed Study Cr. 1-3**

For students desiring additional work in the language at the intermediate level; for programs of work not included in scheduled course, either in language or literature. Offered Every Term.

**Prerequisites:** POL 2010 with a minimum grade of D-  
**Repeatable for 6 Credits**

**POL 5990 Directed Study Cr. 1-3**

Offered Every Term.

**Prerequisites:** POL 3020 with a minimum grade of D-  
**Repeatable for 12 Credits**

**POL 5993 Writing Intensive Course in Polish Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a designated corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Fall, Winter.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**POL 5999 Internship in Polish Studies Cr. 3**

Internship in a public or private organization related to Polish studies. Offered for undergraduate credit only. Offered Every Term.

**Prerequisite:** POL 3000 with a minimum grade of C- or POL 3030 with a minimum grade of C- or POL 3060 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Slavic Studies or Slavic Studies Honors.

## PPR - Pharmacy Practice

**PPR 4115 Social Administrative Sciences and Professional Development I Cr. 3**

Designed to familiarize the student with pharmacy as a profession and to facilitate an understanding of its place in health care today and in the future. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 4245 Patient Care Lab 1 Cr. 1**

The Patient Care Lab sequence (PCL 1-4) is designed to allow students to begin to develop the direct patient care and pharmacy practice skills they will need to become successful practitioners. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$80

**PPR 4255 Social Administrative Sciences and Professional Development II Cr. 2**

Exploration of health care delivery and payment systems, with an emphasis on pharmacy and pharmacists. Discussion of social constructs, cultural sensitivity, and health belief models as related to pharmacy practice. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.



**PPR 4315 Pharmacy Jurisprudence I and Professional Responsibility Cr. 2**

Provides a foundational knowledge of pharmacy law with a combined emphasis on professional responsibility. The law component will focus on the application of Michigan state and federal laws to the practice of pharmacy. The professional responsibility component will prepare pharmacy students for their upcoming didactic and experiential learning. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 4365 Introductory Pharmacy Practice Experience I Cr. 1**

**Satisfies General Education Requirement:** Writing Intensive Competency Beginning learning experiences for patient interviewing and counseling, interaction with healthcare professionals, pharmacy practice in various settings, interprofessional education, healthcare in the underserved population, and community service. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 5145 Patient Care Lab II Cr. 1**

The Patient Care Lab sequence (PCL 1-4) is designed to allow students to begin to develop the direct patient care and pharmacy practice skills they will need to become successful practitioners. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$80

**PPR 5155 Social Administrative Sciences and Professional Development III: Practice Management Cr. 2**

Focus on topics that will enable an understanding of how pharmacy services are managed and how to manage personnel and provide leadership. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 5165 Introductory Pharmacy Practice Experience II Cr. 1**

Beginning learning experiences for patient interviewing and counseling, interaction with healthcare professionals, pharmacy practice in various settings, interprofessional education, healthcare in the underserved population, and community service. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 5215 Applied Pharmacokinetics and Pharmacogenomics Cr. 2**

Application of knowledge of pharmacokinetics and pharmacogenomics to patient-specific drug dosing. Offered Winter.

**Prerequisite:** PSC 5115

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 5245 Patient Care Lab III Cr. 1**

The Patient Care Lab sequence (PCL 1-4) is designed to allow students to begin to develop the direct patient care and pharmacy practice skills they will need to become successful practitioners. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$80

**PPR 5255 Social Administrative Sciences and Professional Development IV Cr. 2**

Designed to enable understanding of the importance of constructing medication systems and processes around proven best practices to maximize patient safety and to begin developing the ability to conceptualize, implement, and manage these systems in all health care settings. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 5265 Introductory Pharmacy Practice Experience III Cr. 1**

The introductory pharmacy practice experiences are to provide a beginning learning experiences for patient interviewing and counseling, interaction with healthcare professionals, pharmacy practice in various settings, interprofessional education, healthcare in the underserved population, and community service. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 5990 Directed Study in Pharmacy Practice Cr. 2**

No credit after election of two credits in any of PSC 5990, PSC 5991, PSC 5992, except by written consent of department chair. Offered Every Term.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 6115 Applied Therapeutics in Self-Care Cr. 2**

Application of concepts of patient assessment, therapeutics, patient education, and health care systems to patient self-care. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6145 Patient Care Lab IV Cr. 1**

The Patient Care Lab sequence (PCL 1-4) is designed to allow students to begin to develop the direct patient care and pharmacy practice skills they will need to become successful practitioners. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$80

**PPR 6155 Social Administrative Sciences and Professional Development V Cr. 3**

Development of and justification for a pharmacy service, including background, service objectives, service design, implementation plan, and evaluation. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6165 Community-Introductory Pharmacy Practice Experience (C-IPPE) Cr. 2**

Introduction to the organization and provision of community pharmacy services. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6175 Hospital-Introductory Pharmacy Practice Experience (H-IPPE) Cr. 2**

Introduction to the organization and provision of health-system pharmacy services. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6235 Social Administrative Sciences and Professional Development VI Cr. 2**

Understanding, developing and evaluating population health and population-based health care programs. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6245 Pharmacy Ethics and Professional Responsibility Cr. 2**

Understanding ethical precepts and applying normative principles to the practice of pharmacy in the context of professional service to the community. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6295 Clinical Capstone Cr. 2**

Utilization of pharmacotherapeutic-related knowledge and skills to evaluate patient cases and practice-related problems in order to assess students' preparedness for advanced pharmacy practice experiences. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**Fees:** \$99

**PPR 6300 Patient Perspectives of Health, Illness and Culture Cr. 2**

People from various cultures (religious, ethnic, sexual orientation, disability, chronic illness, economic status) discuss in small groups how these cultures influence living with a chronic illness. Students also discuss readings on health culture and keep a journal on their course experience. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Equivalent:** OT 6320

**PPR 6320 Underserved Care: Local and Global Experiences Cr. 2**

Provides the opportunity for hands-on clinical experience in local and international under-served communities. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6520 Contemporary Issues in Nutrition Support Cr. 2**

Provision of patient care in cooperation with patients, patients' agents, prescribers, and other members of an interprofessional health care team; management and use of resources of the health care system; evaluation of a patient case and design of an optimal nutritional regimen. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 6550 Psychiatric Pharmacy Cr. 2**

Covers core clinical sciences beyond the required pharmacotherapy modules on psychiatric topics. Offered Spring/Summer.

**Prerequisite:** PHA 5155 or PHA 5225

**PPR 6560 Foundations in Global Health Cr. 2**

Provides pharmacy students an introduction to Global Health and enables them to explore their own Global Health interests through local volunteering, class discussions and group projects. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6570 Pharmaceutical Economics Cr. 2**

This course introduces students to cost-effectiveness analysis and related economic tools used to determine the value of pharmaceuticals to society. The tools reviewed are increasingly being used by insurance programs to regulate access to drugs by patients. This course will also cover the institutional landscape of the markets for development and sale of pharmaceuticals, with a focus on the features that have made pharmaceutical prices in the United States among the highest in the world. Policy options that are being considered to reduce these prices have become highly politically salient in recent years, this will be reviewed as well. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6580 Contemporary Issues in Anticoagulation Management Cr. 2**

Advanced therapeutics in area of anticoagulant use. Offered Fall.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 6590 Principles of Pain Management Cr. 2**

Covers core clinical sciences beyond the required pharmacotherapy modules on pain management topics. And expands on the pathophysiology, pharmacology, and therapeutics covered in the core clinical sciences courses to assist the student pharmacist in developing assessment skills emphasizing inter-professional collaboration. Offered Winter.

**Prerequisite:** PHA 5225

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 6690 Managed Care Pharmacy Elective Cr. 2**

This pharmacy elective course will provide an overview of managed care pharmacy and an understanding of how it impacts the healthcare system. The course will provide the foundation to prepare students for experiential education and career opportunities in a variety of settings, such as: managed care organizations, hospital administration, ambulatory care, pharmaceutical industry, and community pharmacy management. Offered Fall.

**PPR 6720 Clinical Applications of Diabetes Cr. 2**

Advanced elective course on management of diabetes mellitus and its related disorders. Principles of student directed learning, literature discussion and evaluation, interprofessional exposure, small group learning, and hands-on activities. Offered Fall.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 6740 Advanced Topics in Ambulatory Care Pharmacy Cr. 2**

The overall goal of this course is to increase pharmacy students' knowledge of practice models for ambulatory care pharmacy and investigate career opportunities in ambulatory care pharmacy practice. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6770 Study of Medicinal Plants and Culture in Amazonia Cr. 2**

Ethnobotany of indigenous plants and use of these substances in the health and beliefs of the native people. Students meet with botanists, taxonomists, pharmacists, shamans, and native people. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 6780 Critical Care Pharmacy Elective Cr. 2**

This course is designed to meet the needs of pharmacy students with an interest in further developing their knowledge in common acute diseases encountered in the intensive care unit and the emergency department. The format will consist of a discussion of the disease and drug therapy using patient case presentation(s), class participation, and flipped classroom teaching methods. These sessions will focus on choice and rationale for therapy, dosing and disease state guidelines, as well as monitoring parameters for assessment of efficacy, safety, and toxicity. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 6860 Principles of Pediatric Pharmacy Cr. 2-3**

Common pediatric problems and diseases including poisonings, cystic fibrosis, sickle-cell anemia, placental transfer of drugs and teratology. Offered Yearly.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 7115 Special Topics: Interprofessional Education Cr. 2**

This interprofessional course is for health professional student learners in the areas of advanced practice. The course allows health professional students to learn about, from and with each other, how each discipline contributes to the healthcare team, the importance of effective communication, the role of team collaboration and preparing health care professionals for collaborative practice with a focus on clinical decision making in interdisciplinary teams. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate, Medical or Professional level students.

**Equivalent:** MD4 8115, NUR 7115, PAS 7115, SW 7115

**PPR 7195 Advance Research Scholars: Advance Pharmacy Practice Experience Cr. 4**

Provides capstone research instruction aimed at project completion, writing and peer review processes, and research program advancement. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PPR 7225 Vaccines in Clinical and Public Health Practice Cr. 2**

Explorations of topics related to use of vaccines for infants, children and adults in practice settings that include clinics, pharmacies and public health programs. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy or Master in Public Health programs.

**PPR 7410 Advanced Pharmacy Practice Inpatient/Acute Care Cr. 4**

Experimental education designed to provide practical training experience in managing drug therapy of patients in a variety of health-care settings. Offered Every Term.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$85

**Repeatable for 12 Credits**

**PPR 7420 Advanced Pharmacy Practice Ambulatory Care Cr. 4**

Experimental education designed to provide practical training experience in managing drug therapy of patients in a variety of health-care settings. Offered Every Term.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 12 Credits**

**PPR 7430 Advanced Pharmacy Practice Patient Care Core Cr. 4**

Experimental education designed to provide practical training experience in managing drug therapy of patients in a variety of health-care settings. Offered Every Term.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 12 Credits**

**PPR 7530 Advanced Pharmacy Practice Patient Care Elective I Cr. 4**

Experimental education designed to provide practical training experience in managing drug therapy of specialized patients in diversified health-care settings. Offered Every Term.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 8 Credits**

**PPR 7540 Advanced Pharmacy Practice Non-Patient Care Elective I Cr. 4**

Practical education to develop knowledge in specific areas of pharmacy practice in specialized pharmacy or health-care settings. Offered Every Term.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 8 Credits**

**PPR 7550 Advanced Pharmacy Practice Hospital Cr. 4**

Practical training experience in hospital pharmacy practice, including pharmacy operations and clinical services. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 7560 Advanced Pharmacy Practice Community Cr. 4**

Practical training experience in management of a community pharmacy, and managing drug therapy of patients in community pharmacy setting. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 7960 Economic Evaluation of Health Care Interventions Cr. 2-3**

Designed for advanced professional students (3rd year pharmacy, medicine, health sciences), students in the Master of Public Health degree program, graduate students and Fellows who would like an introduction to cost-effectiveness analysis. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PPR 7990 Directed Study in Pharmacy Practice Cr. 1-3**

Minor projects in pharmacy for students whose interests and needs are not adequately met in other scheduled classes or in the doctoral research project. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

## PS - Political Science

**PS 1000 Introduction to Political Science Cr. 3**

**Satisfies General Education Requirement:** Civic Literacy, Social Inquiry, Social Sciences

Introduction to the scope and method of political science. Overview of politics, political systems, nature and role of political institutions. Empirical political theory; practice in conducting political research. Offered Yearly.

**PS 1010 American Government Cr. 4**

**Satisfies General Education Requirement:** American Society Institution, Civic Literacy, Social Inquiry

Politics and functions of American governmental institutions. Policy processes and the role of citizens in the political process. No credit after PS 1030. Offered Every Term.

**PS 1030 The American Governmental System Cr. 3**

**Satisfies General Education Requirement:** American Society Institution, Civic Literacy, Social Inquiry

Structure and functions of the American political system. Governmental institutions and processes. No credit after PS 1010. Offered Every Term.

**PS 1050 Understanding Political Science Statistics Cr. 4**

**Satisfies General Education Requirement:** Quantitative Experience Comp Applications of elementary statistical methods to the study of American government, comparative politics, and international relations. Offered Fall, Winter.

**PS 1100 Changing Detroit Cr. 4**

**Satisfies General Education Requirement:** Civic Literacy, Diversity Equity Incl Inquiry

This course is the first half of the Honors Foundation Sequence. It explores the history and development of the city of Detroit, including the challenges of deindustrialization and segregation, and guides students through the steps of civic engagement including how to identify and specify social problems, formulate workable solutions and advocate effectively for their implementation. Offered Fall.

**PS 1110 Work and Democracy: An Introduction Cr. 3****Satisfies General Education Requirement:** Civic Literacy

The course explores the role that labor and the labor movement have played in shaping democracy in the United States over the past two centuries and the limits of democracy in the workplace. It covers key political achievements of labor and workers' organizations and the contemporary challenges they face today. Key themes include labor and citizenship, industrial democracy, the role of the state in mediating labor relations, gender, race, sexuality and labor, the labor movement as a social movement, and power and politics in the workplace. Offered Every Term.

**Equivalent:** ANT 1110, ELR 1110, HIS 1110**PS 2000 Introduction to Urban Studies Cr. 4****Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

In this introductory urban studies course, students learn about the historic and contemporary forces driving urbanization with an emphasis on US cities and urban areas; the effects of these forces on diverse population groups; and challenges facing cities and strategies to resolve them. Although the course will draw from international contexts, wherever possible, experiences of and from the Detroit metro—city and suburbs—will be used to illustrate particular themes. Student learning centers on an examination of issues related to diversity, equity, and inclusion, and broader social phenomena. Offered Every Term.

**Equivalent:** GPH 2000, HIS 2000, SOC 2500, US 2000**PS 2206 Political Sociology Cr. 3**

Examines the sociology of politics and explores sociological analysis of political processes in the United States. Offered Every Other Year.

**Equivalent:** SOC 2206**PS 2240 Introduction to Urban Politics and Policy Cr. 4**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences  
Influences on politics and problems of cities, forms of local political involvement, role of local public officials, impact of state and federal policies. Overview of current issues and problems in specific policy areas. Offered Yearly.

**PS 2310 Introduction to Public Administration Cr. 4**

Governmental and administrative structures and organizations. Concepts and techniques of public management. Impact of public bureaucracies on modern society. Offered Every Term.

**Prerequisites:** PS 1010 with a minimum grade of D- or PS 1030 with a minimum grade of D-**PS 2410 Introduction to Public Policy Cr. 4**

Public policy-making institutions and processes. Emphasis on theory and practice of policy formation, implementation and evaluation. Various models of political decision making. Offered Every Term.

**Prerequisites:** PS 1010 with a minimum grade of D- or PS 1030 with a minimum grade of D-**PS 2420 Ethics and Politics of Public Policy Cr. 4**

Moral and political standards for policy-making, relation of major political and social theorists to policy issues such as economic inequality, racial and sexual discrimination, the enforcement of morals, and violence and social change. Offered Yearly.

**PS 2440 Science, Technology, and War Cr. 4**

Modern weapons, nuclear and otherwise are becoming increasingly available and dangerous; people with grievances seem eager to use them. Science and technology, as well as constraints of bureaucracy and society underpin weapons development and use, as technologies affect prospects and results of war and peace. History of humanity and its tools of war. Offered Yearly.

**Equivalent:** HIS 2510, PCS 2020, PHY 2020**PS 2460 Policy and Rationality: Dilemmas of Choice Cr. 4**

Individual decision-making and limitations on human cognition; collective choice; implications for policy development. Offered Yearly.

**PS 2510 Introduction to Political Ideologies Cr. 4**

Comparison of ideologies, political institutions, and economic systems. Democracy and authoritarianism, capitalism, socialism and communism contrasted. Offered Yearly.

**PS 2550 The Study of Non-Violence Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Intellectual and social roots of non-violence and the practice of non-violence in different people's life styles. Historical and political forces and movements related to non-violence. (Some sections linked to Peace and Justice Learning Community.) Offered Every Term.

**Equivalent:** HIS 2530, PCS 2050, SOC 2050**PS 2700 Introduction to Canadian Studies Cr. 3**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Survey of Canada in its cultural, literary, historical, geographical and political aspects; key concepts and social patterns that define the Canadian experience. Offered Intermittently.

**Equivalent:** ENG 2670, GPH 2700, HIS 2700**PS 2710 Introduction to Comparative Politics Cr. 4**

Comparison of the political cultures, politics, and political institutions of Eastern, Western, and Southern European political systems. Similarities and differences in public policies; European influence; parallels in developing nations. Offered Every Other Year.

**PS 2810 World Politics Cr. 4**

Role of power, methods of resolving international conflict, economic relations between industrialized and Third World countries, multinational corporations, terrorists, and other non-state actors. Offered Yearly.

**PS 2820 Introduction to Peace and Conflict Studies Cr. 3**

Introduction to the peace and conflict studies co-major. Survey, ranging from biology and conflict among animals to disputes involving the individual, the family, the neighborhood and region, the nation and global or international community. Definitions and approaches to peace. (Some sections linked to Peace and Justice Learning Community.) Offered Yearly.

**Equivalent:** HIS 2500, PCS 2000**PS 2830 Topics in Peace and Conflict Studies Cr. 1-4**

Special topics relating to peace and conflict studies. Offered Every Term.

**Equivalent:** HIS 2520, PCS 2010**Repeatable for 12 Credits****PS 2992 Political Science Internship Cr. 1-4**

Internship in a public or quasi-public organization, agency, civic or voluntary group, or campaign organization. Collateral reading, written work and arranged conferences with faculty supervisor. Offered Every Term.

**Repeatable for 4 Credits****PS 3010 Public Opinion and Political Behavior Cr. 4**

Factors that shape public opinion; patterns of political participation and electoral politics. Impact of public opinion and popular participation on the political system. Offered Yearly.

**Prerequisites:** PS 1010 with a minimum grade of D- or PS 1030 with a minimum grade of D-**PS 3020 Political Parties and Elections Cr. 4**

Development, structure, functions and operations of American political parties; their electoral and governmental roles; comparison with other systems; possible reforms. Offered Every Other Year.

**Prerequisites:** PS 1010 with a minimum grade of D- or PS 1030 with a minimum grade of D-



**PS 3025 Political Campaigns in America Cr. 4**

Nature and dynamics of campaigns for public office in the U.S. Campaign techniques and strategies in an era of candidate-centered American politics. Offered Intermittently.

**PS 3030 Political Interest Groups Cr. 4**

Structure, techniques and internal politics of interest groups, their roles in policy-making and relationship with other groups such as political parties, legislatures and administrative agencies. Offered Intermittently.

**Prerequisites:** PS 1010 with a minimum grade of D- or PS 1030 with a minimum grade of D-

**PS 3040 The Legislative Process Cr. 4**

Function, structure, procedures and politics of American legislative bodies with special attention to Congress. Relationships with other political institutions, especially the executive branch, and comparisons with foreign legislative institutions. Offered Yearly.

**Prerequisites:** PS 1010 with a minimum grade of D- or PS 1030 with a minimum grade of D-

**PS 3050 Politics of the American Presidency Cr. 4**

Constitutional, historical, and political bases of the presidency. Influence of courts, Congress, interest groups, the news media, and personality on the office. Offered Intermittently.

**Prerequisites:** PS 1010 with a minimum grade of D- or PS 1030 with a minimum grade of D-

**PS 3060 State Government and Politics Cr. 4**

A comparison of states in the United States in terms of their governmental structures, functions and response to changes in national and local relationships. Offered Every Other Year.

**PS 3070 Michigan Politics Cr. 4**

History and overview of Michigan politics: structure, process, current issues. Offered Every Term.

**PS 3080 Gender and Politics Cr. 4**

**Satisfies General Education Requirement:** Civic Literacy  
Genesis and perpetuation of gender roles; feminist movements to modify these roles; impact of gender on public policy; gender-differentiated impact of public policy. Offered Intermittently.

**PS 3100 American Legal Systems and Processes Cr. 4**

Introduction to the American legal system and to basic concepts in American law; exploration of the role of judicial review of legislation in a democratic society, covering topics such as race and gender discrimination, affirmative action, LGBTQ+ rights, hate speech, and pornography. Offered Yearly.

**PS 3120 Politics of the Criminal Justice Process Cr. 3**

**Satisfies General Education Requirement:** Civic Literacy  
Political aspects of criminal justice; politics of crime legislation, police function, prosecution, adjudication, and corrections; Federal role in criminal justice. Offered Intermittently.

**Equivalent:** CRJ 3120

**PS 3250 Detroit Politics: Continuity and Change in City and Suburbs Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Detroit area political systems and processes; historical, economic, and social influences on local politics. Traditions, changes, and future challenges in Detroit and metropolitan area. Offered Every Other Year.

**Equivalent:** HIS 3240

**PS 3430 Bureaucracy and Public Policy Cr. 4**

Theory and development of modern governmental bureaucracy. Bureaucratic politics and its significance for decision making and program implementation. Normative aspects of bureaucracy, including accountability to the public and the role of bureaucrats in helping to define rational, efficient policies. Offered Every Other Year.

**Prerequisites:** PS 1010 with a minimum grade of D- or PS 1030 with a minimum grade of D-

**PS 3450 Environmental Policy and Politics Cr. 4**

Introductory course; primary focus on United States. Discussion of major environmental problems and their causes; environmental politics and the policy process. Offered Every Other Year.

**PS 3515 American Political Thought Cr. 3-4**

American political culture and thought through modern history from 1930 to the present. Variety of interpretations of American political culture including conservative, liberal, Marxist, and post-modernist. Offered Every Other Year.

**PS 3520 Theories of Justice Cr. 4**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy  
Letters

Exploration of what terms such as justice, equality, liberty, and democracy mean to adherents of varying worldviews; examination of processes for arriving at collective decisions binding on participants who disagree about fundamental principles of political morality. Offered Every Other Year.

**PS 3530 Great Political Thinkers I Cr. 4**

Great political thinkers from Plato to Machiavelli. Offered Every Other Year.

**PS 3540 Great Political Thinkers II Cr. 4**

Great political thinkers from Machiavelli to the present. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PS 3600 Methods of Political Inquiry Cr. 4**

Techniques of political science research: data gathering techniques, especially survey design; data processing and analysis using computers; and the interpretation and reporting of statistical results. Offered Every Term.

**PS 3710 Politics of Western Europe Cr. 4**

Western Europe: driving force in world politics over centuries; lofty principles and gruesome conflict. Origins of European political systems; twentieth-century crises; ongoing process of creating united Europe. Offered Every Other Year.

**PS 3715 Politics of Central and Eastern Europe Cr. 4**

Central and eastern Europe: crossroads of many world civilizations and birthplace of the movements that shaped the modern world. Rise and fall (and rise?) of nationalism, communism, and democracy in the region. Offered Every Other Year.

**PS 3735 Politics of Latin America Cr. 4**

Political, social, economic and cultural foundations, the structure and function of institutions, and political processes in Latin America. Offered Every Other Year.

**PS 3770 Politics of East Asia Cr. 4**

Survey of five major polities in East Asia: China, Taiwan, Japan, South Korea, and (more briefly) North Korea. Why some of them have undergone democratization and others have not; how political factors have affected their recent economic performance; what explains conflicts and cooperation among them, and what security implications they hold for the United States. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PS 3795 Latin America in World Affairs Cr. 4**

Latin America's position in the international system; relationships between Latin American countries and the United States. Offered Every Other Year.

**PS 3811 Theory of World Politics Cr. 4**

Major theoretical approaches. Evaluation of the extent to which theses that devolve from realist, idealist, globalist, culturalist, feminist and decision-making approaches allow the explication of phenomena in world politics. Offered Intermittently.

**Prerequisites:** PS 2810 with a minimum grade of D-

**PS 3820 Pan Africanism: Politics of the Black Diaspora Cr. 4**

**Satisfies General Education Requirement:** Global Learning Inquiry  
Interplay of Pan Africanism as a cultural and socio-political movement in world politics from its origins as a concept to organizing practice worldwide. Offered Yearly.

**Equivalent:** AFS 3420

**PS 3830 War Cr. 4**

Major theoretical and methodological approaches to study of international conflict. Analysis of impact of domestic, state, and global system factors in explicating international war. Aspects of civil wars that have become internationalized. Offered Intermittently.

**Prerequisite:** PS 2810 with a minimum grade of C-

**PS 3835 Middle East Conflict Cr. 4**

International and regional factors affecting contemporary political landscape of the region: influence of European colonialism; emergence and persistence of Palestinian-Israeli conflict; contemporary developments in the Persian Gulf and the role of U.S. policy since 9/11. Discussion of topics of current interest such as the situation in Iraq and the prospects for democratic reform in the region. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PS 3991 Directed Study: WSU-Salford Exchange Cr. 3-9**

Credit earned through approved upper-division course work at the University of Salford, England, as part of the W.S.U.- Salford Exchange Program. Offered Fall, Winter.

**PS 4460 Techniques of Policy Analysis Cr. 4**

Introduction to several major techniques used by policy analysts to measure and evaluate the effectiveness, efficiency, and equity of public policies and programs. Approaches and methodologies considered will include systems analysis, benefit-cost analysis, and simulation. This course involves quantitative data analysis. Students are expected to be proficient in basic algebra and to be computer literate. Offered Yearly.

**Prerequisite:** ECO 2010

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**Fees:** \$5

**PS 4710 Democracy Cr. 4**

"The worst form of government except for all the others?" How democracy has evolved from ancient Athens until today. What makes democracy work. How democratization is proceeding in Latin America, Europe, Africa, Asia. Offered Every Other Year.

**PS 4725 Globalization and Politics Cr. 4**

Domestic and international politics and globalization: theories and evidence. Consequences for economic development and democratization or economic inequality. Questions explored include: What is economic globalization? Is it really new? What caused its recent resurrection? What political disjunctions engendered the process and how do they vary within political institutions? How has it threatened sovereign nation-states, constrained governmental policy autonomy, and encouraged regional separatist movements? Offered Every Other Year.

**PS 4810 Foreign Policies of Major Powers Cr. 4**

Major issues and trends in the foreign policies of Russia, China, Japan, and the European Union. Offered Every Other Year.

**PS 4990 Directed Study Cr. 1-4**

Independent study assignment under the direction of a faculty member. Offered Every Term.

**Repeatable for 8 Credits**

**PS 4995 Senior Honors Paper Cr. 4**

Completion of an extended examination of a topic or research question in political science, under the direction of one or more members of the departmental faculty. Offered Every Term.

**PS 5030 African American Politics Cr. 4**

Nature and texture of black politics; various perspectives on politics by blacks; the impact of blacks on American politics. Offered Every Other Year.

**Equivalent:** AFS 5030

**PS 5040 Religion and Politics Cr. 4**

Religion and American political culture; religious institutions and religious movements; church lobbying in national, state, and local governments; specific manifestations of religion and politics; African Americans, women and conservative Christians. Offered Every Other Year.

**PS 5110 Constitutional Law Cr. 4**

Examination of the power of judicial review, barriers to court review, distribution of powers in the national government, federal-state relations, federal-state power to regulate and tax interstate commerce, and protection of property through the due process clause. Offered Yearly.

**PS 5120 Constitutional Rights and Liberties Cr. 4**

The Bill of Rights and the Fourteenth Amendment's due process and equal protection clauses, including rights of criminal defendants, freedom of speech and religion, race and sex discrimination. Offered Yearly.

**PS 5560 Biopolitics Cr. 4**

Use of the perspective of the life sciences in the study of political behavior, political evolution, political institutions, and contemporary political issues. Offered Yearly.

**PS 5630 Statistics and Data Analysis in Political Science I Cr. 4**

Introduction to statistical description and inference in the study of politics, administration and public policy. Introduction to statistical analysis using microcomputers. Offered Every Term.

**PS 5740 Ethnicity: The Politics of Conflict and Cooperation Cr. 4**

Current ethnic (racial, linguistic, religious, and cultural) conflicts regionally, nationally and internationally. Introduction to concepts and analytic perspectives for understanding ethnicity as a factor in nation building and maintenance. Offered Yearly.

**PS 5760 History and Development of Islamic Political Thought Cr. 3**

Historical analysis of political Islam through study of the precepts and historical vicissitudes impacting the Islamic world from within and from external forces. Offered Intermittently.

**Prerequisites:** NE 2030 with a minimum grade of D- and NE 3040 with a minimum grade of D-

**Equivalent:** NE 5110

**PS 5820 International Law Cr. 4**

Sources of international law (treaty and custom); institutions of the international system and relationship to domestic law and the courts; state sovereignty; role of United Nations and other international organizations. Application of legal norms to contemporary armed conflicts and human rights catastrophes. Offered Every Other Year.

**PS 5830 International Diplomacy and Conflict Cr. 3**

This course presents career-relevant understanding of international conflict negotiations, mediation and diplomacy. It covers diplomatic history, theories and processes of diplomatic practice and international conflict background and settlement. Students will also enhance practical skills in diplomatic practice and policy-relevant writing through participation in negotiation simulations and preparation of planning and advisory reports. Offered Intermittently.

**PS 5850 Human Rights Cr. 4**

Theoretical traditions that have inspired the human rights movement; critiques from liberal and conservative perspectives; international human rights treaties and efforts to implement their terms; controversies over cultural relativism, economic and social rights, treatment of women, and the question of non-intervention. Offered Intermittently.

**PS 5860 Conflict in the Nuclear Age Cr. 3**

Examination of post-World War II historical conflicts using formal mathematical models and games of strategic interaction. Offered Intermittently.

**PS 5890 Dispute Resolution Cr. 3**

Overview of the processes and actors in the field of dispute resolution including negotiation, mediation, arbitration, and conciliation. Offered Yearly.

**Equivalent:** CRJ 5994, PCS 5000, PSY 5710

**PS 5991 Directed Study: WSU- Salford Exchange Cr. 3-9**

Credit earned through approved upper-division course work at the University of Salford, England, as part of W.S.U.- Salford student exchange program. Offered for undergraduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PS 5992 Political Science AGRADE Internship Cr. 4**

Internship to supplement classroom course work with practical experience gained through substantial involvement in a responsible capacity in a public or quasi-public agency or civic organization. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PS 5993 Writing Intensive Course in Political Science Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a designated corequisite; see section listing in Schedule of Classes for corequisites available each term. Offered Every Term.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and PS 3000-6999 with a minimum grade of D- and PS 3000-6999 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PS 5999 Special Topics in Political Science Cr. 1-4**

Topics to be announced in Schedule of Classes . Offered Every Term.

**Repeatable for 16 Credits**

**PS 6010 Political Psychology Cr. 3**

Political attitudes and behavior of both ordinary citizens and political elites using theory and research that adopt a psychological perspective. Topics include: political socialization, ideological belief systems, role of mass media in shaping beliefs and attitudes, race and gender stereotypes and their psychological and political consequences, personality and the dynamics of political leadership. Offered Yearly.

**Equivalent:** PSY 6020

**PS 6020 Intergovernmental Relations and American Federalism Cr. 3**

Legal, fiscal, political and administrative relationships among governments in the American federal system. Current issues and public policies which affect or are affected by intergovernmental relationships. Offered Every Other Year.

**PS 6050 Class, Race, and Politics in America Cr. 3**

Historical and analytic investigation into the role of class and race in American politics. Offered Intermittently.

**PS 6100 Introduction to Graduate Peace and Security Studies Cr. 3**

Survey of the peace and security studies fields at the graduate level. Offered for graduate credit only. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PCS 6100

**PS 6340 Public Sector Labor Relations Cr. 3**

History, present functions, problems and current controversies surrounding public sector unions. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ELR 7430

**PS 6440 Regional, State, and Urban Economic Development: Policy and Administration Cr. 3**

Examination of regional, state, and local economic development theory, analysis, policy and administration. Offered for graduate credit only. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** ECO 6650, UP 6550

**PS 6640 Statistics and Data Analysis in Political Science II Cr. 3**

Modern statistical theory applied to the study of politics, administration, and public policy. Multivariate analysis: multiple regression, logistic regression, path analysis, and factor analysis. Offered Yearly.

**Prerequisite:** PS 5630

**PS 6700 Financial Management for Nonprofit Organizations Cr. 3**

Conducting financial management in nonprofit organizations. Topics include: legal responsibilities, cash versus accrual basis accounting, financial statements, fund accounting, fixed assets and depreciation, contributions and budgeting. Offered Yearly.

**PS 6720 Marketing, Development, and Grant Writing for Nonprofit Organizations Cr. 3**

How nonprofit organizations locate and secure resources from the private sector, individual philanthropists, foundations, and governments, through marketing, development, and the writing and submission of grants. Offered Yearly.

**PS 6830 Civil War and Conflict Processes Cr. 3**

Introduction to literature on civil wars: origins, variables affecting their duration, termination. Peace making and peace agreements studied comparatively. Recent Balkan and African civil wars. Offered Every Other Year.

**PS 6850 International Organizations Cr. 3**

Covers origins and significance of international institutions in world politics. Reviews theoretical approaches to international institutions and global governance, including realist, institutionalist and constructivist. Examines problems of cooperation, delegation of power, disparities of power and the development of robust international regimes in a variety of areas of global governance (security, economic, human rights). Offered Intermittently.

**PS 6860 American Foreign Policy Cr. 3**

Contending paradigms of realism and liberalism as they relate to programs for American foreign policy. Offered Yearly.

**PS 6870 United States Foreign Relations Law Cr. 4**

U.S. constitutional law and politics relating to the branches' competencies in conduct of foreign affairs and to incorporation of international law in U.S. courts; war powers, counterterrorism, treaties, human rights litigation, immunities. Offered Every Other Year.

**Equivalent:** LEX 7888

**PS 7020 The New Institutionalism Cr. 3**

Applies concepts of rational choice theory to explain the development of political institutions. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7030 American Political Processes Cr. 3**

Political socialization, public opinion, and political behavior. Role of political parties and interest groups in the political process. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7040 American National Institutions Cr. 3**

Examination of the functions, structure and processes of major American governmental institutions with special emphasis on the Congress and the courts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7099 Topics in American Politics Cr. 3**

Topics chosen by faculty; may include: gender politics, political socialization, voting behavior, political parties, and interest groups. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7240 Urban Public Policy Cr. 3**

Overview of major theoretical approaches to understanding urban/regional problems and politics. Focus on following regional issues: interdependence of populations across municipal borders, municipal fragmentation, racial and economic segregation, mobility of labor and capital within and across regions. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7250 Seminar in Urban Administration Cr. 3**

Administration in agencies with urban-related policy and program functions. Focus on: public services delivery; urban systems development; program-project design, implementation and evaluation; and intergovernmental relations. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7300 Public Administration and its Environment Cr. 3**

Emergence and evolution of public administration as both a profession and a field of study. The role of public bureaucracies in the political process and efforts to ensure administrative accountability and responsiveness to the democratic system. Administrative relationships with elected executives, legislatures, the judiciary, the media and interest groups. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7310 Public Management Internship Cr. 1-3**

Internship designed to integrate graduate course work with practical knowledge and experience gained from employment in a responsible capacity in a public agency or nonprofit organization. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**PS 7320 Organization Theory and Behavior Cr. 3**

Study of major theoretical approaches to the structure, functioning and performance of organizations and the behavior of groups and individuals within them. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7330 Public Budgeting and Finance Cr. 3**

Processes of public budgeting in the United States; political dynamics of budgetary decision-making; assessment of efforts to change budget systems; basic concepts of fiscal analysis of expenditure patterns and revenue sources. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7340 Public Personnel Management Cr. 3**

Examination of the public personnel systems of American governmental units; analysis of current practices and techniques for recruiting, selecting, training, promoting, compensating and removing public employees. Major issues in public personnel management such as collective bargaining, equal employment opportunity, civil service reform and employee productivity and performance. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7350 Managing Public Organizations and Programs Cr. 3**

Processes and techniques for managing public organizations and providing public services. Topics include: total quality management, communication and information management, motivation and supervision of subordinates, planning and decision making. Relying on for-profit and nonprofit organizations in service delivery. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7375 Professional Development Seminar Cr. 1-2**

Analysis of managerial techniques and practices currently used by administrators in the public sector. Emphasis on managerial applications of information technology, administrative writing and presentation skills, and organizational and behavioral approaches and techniques. Content areas will vary with yearly offerings. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7410 Policy Formation and Implementation Cr. 3**

Analysis of the processes through which public policy is made and implemented. Examination of the factors that promote or impede the development and realization of rational, effective, and responsive public policy. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7460 Program Evaluation Cr. 3**

Theory and practice of program evaluation. Role of program evaluation in the policy process. A number of theories of evaluation will be presented, followed by a discussion of techniques. Topics include total quality management, bench marking; utilization of evaluation. Offered Yearly.

**Prerequisite:** PS 5630

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7470 Comparative Public Policy Cr. 3**

Provides a comparative introduction to the field of public policy for graduate students. Topics covered include actors and institutions involved in policy making, key concepts, major policy theories and frameworks. After establishing this conceptual foundation, students will explore substantive policy in the U.S. and international context, with attention to the sources of policy differences, such as political institutions, economic conditions and culture. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7480 Policy Analysis for Administration Cr. 3**

Introduction to the conceptual foundations of public policy analysis as well as training in various policy analysis tools. Opportunities for students to do policy analysis. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7550 Topics in the History of Political Thought Cr. 3-6**

Survey of selected political theorists by period or theme; emphasis on interpretation of major works. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7560 Contemporary Political and Social Theory Cr. 3-6**

Analysis of selected major problems, topics, and themes in recent political and social theory. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7580 Political Theory of Public Law Cr. 3**

Legal restraints on exercise of public power as conceived in works of early modern theorists (e.g., Machiavelli, Locke, Montesquieu, and Madison), and as applied in constitutional arrangements that have emerged in a range of historical settings. Topics include: role of law in totalitarian political systems; emergency rule; comparative approaches to judicial review. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** LEX 7659



**PS 7660 Research Methods in Policy and Politics Cr. 3**

Analytic methods in the study of politics and public policy: formulating researchable problems, use of models, research design, measurement, data collection, and computer-based data analysis. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7700 Foundations of Nonprofit Management Cr. 3**

Topics include: nonprofit organizations and their history; nonprofit policy fields; organizational types and characteristics; governance and leadership; nonprofit strategy; nonprofit management; nonprofit advocacy and lobbying; resource development. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7710 Seminar in Comparative Politics Cr. 3**

Research-oriented seminar in which students learn basic approaches to the study of domestic policy-making through the comparative method, including structural, cultural, institutional, elite, and rational choice approaches. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7711 Advanced Seminar in Comparative Politics Cr. 3-6**

Analysis of selected major issues, topics, and debates in the field. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 99 Credits**

**PS 7720 Comparative Politics of Advanced Industrial Democracies Cr. 3**

Provides an in depth at the political structures and institutions of advanced industrial democracies and at the methods, concepts and theories of comparative politics that further our understanding of those countries. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7730 Seminar: Comparative Politics of Developing Countries Cr. 3**

Intellectual questions and methodological strategies political scientists are addressing in the study of politics in the developing world. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7740 Political Economy Cr. 3**

Seminar course; comprehensive survey of political economy: interaction between the government and the economy; microeconomics of politics. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7810 Seminar in World Politics Cr. 3**

Major theoretical approaches. Students evaluate the extent to which theses that devolve from realist, idealist, Marxist, culturalist, decision-making, and alternative approaches allow us to explicate phenomena in world politics. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**PS 7811 Advanced Seminar in World Politics Cr. 3**

Examination of broad range of substantive topics; student develops ability to conduct independent research in world politics subfield; introduction to alternative theoretical approaches and different methods for conducting empirical research. Major performance objective is student development of a research design. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**PS 7995 Directed Study Cr. 1-6**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7997 Research in Political Science Cr. 1-9**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**PS 8000 Readings in Political Science Cr. 3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**PS 8600 Philosophic Problems of Social and Political Inquiry Cr. 3**

Required of all doctoral students. Exploration of competing philosophies of science and their relevance to the study of politics. Study of selected problems in political inquiry, including objectivity, commensurability, and progress. Review of disciplinary history and assessments of contemporary approaches to the study of politics. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PS 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PS 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PS 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PS 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PS 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PS 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## PSC - Pharmaceutical Sciences

**PSC 4115 Pharmaceuticals I Cr. 3**

Introduction to pure drug substance formulation into dosage forms and the principles and mechanisms for developing dosage forms for safe and effective use in patients. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PSC 4125 Introduction to Pharmaceutical Sciences: Medicinal Chemistry / Pharmacology / Immunology Cr. 3**

Introduction to medicinal chemistry, pharmacology and biotechnology with a focus on drug discovery and drug action. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PSC 4215 Pharmaceutics II Cr. 2**

Basic pharmacokinetics: principles of drug administration, distribution, metabolism and excretion (ADME) using different dosage forms, and basics of administration routes. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PSC 4225 Autonomic Pharmacology Cr. 2**

The principles of autonomic pharmacology integrated into an understanding of the functioning of the autonomic system; the major target organs and the physiological effects of agonists and antagonists elicited through autonomic receptor subtypes. Offered Winter.

**Prerequisite:** PSC 4125

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PSC 5115 Pharmacokinetics Cr. 2**

Conceptual knowledge-base and practical calculation applications of pharmacokinetic principles. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PSC 5600 Drugs of Abuse Cr. 2**

Pharmacology and toxicology, both clinical and animal, associated with recreationally-used agents; treatment of acute and chronic problems associated with these agents; concept of chronic drug administration and abuse as disease state. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 5870 Seminar in Pharmacology Cr. 1**

Reports and discussions on current literature and recent advances in the field. Assigned topics presented by students. Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 2 Credits**

**PSC 5990 Directed Study in Medicinal Chemistry Cr. 2**

Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 5991 Directed Study in Pharmaceutics Cr. 2**

Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 5992 Directed Study in Pharmacology Cr. 2**

Offered for undergraduate credit only. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 6285 Pharmacy Seminar Cr. 1**

Presentations on topics of current interest on basic science problems relevant to the major discipline of pharmaceutical sciences. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PSC 6620 Veterinary Pharmacology Cr. 2**

Provides an overview of veterinary pharmacology that offers a review of the chemical structure, mechanism of action, indications for use, and side effects of therapeutics. Includes topics such as toxicology, laws and regulations and common diseases/conditions of veterinary species. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Pharmacy program.

**PSC 6800 Introduction to Research Cr. 2**

Fundamental concepts and resources for responsible conduct of biomedical research and advancing scientific professional development, and data analysis and statistics. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 6890 Toxicology for Pharmacists Cr. 2**

Exposes students to basic concepts in toxicology; serves as a knowledge base to assist in the understanding of mechanisms and rationale behind the relationship of certain drugs and their specific types of toxicities, and addresses tissue and organ-specific toxicities, drug-drug interactions, on-target and off-target effects, and risk assessment. Offered Winter.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 6910 Pharmaceutical Waste: Environmental Impact and Management Cr. 2-3**

Course designed for advanced professional and graduate students with sufficient chemistry and/or biological sciences background who are interested in the environmental impact, management, and regulation of waste pharmaceuticals as emerging issues. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students.

**Equivalent:** CE 6910

**PSC 7010 Advanced Drug Action and Safety I Cr. 3**

Survey of advanced research topics in pharmacology. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 7020 Advanced Drug Discovery I Cr. 3**

Survey of advanced research topics in medicinal chemistry. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 7040 Advanced Drug Formulation and Delivery I Cr. 3**

Survey of advanced research topics in pharmaceutics. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 7160 Advanced Practice Basic Pharmaceutical Sciences Elective Cr. 3-6**

Eight-week rotation in basic science-oriented research laboratory. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 6 Credits**

**PSC 7600 Drugs of Abuse: Advanced Cr. 2**

Pharmacology and toxicology, both clinical and animal, associated with recreationally-used agents; treatment of acute and chronic problems associated with these agents; concept of chronic drug administration and abuse as disease state. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 7700 Advanced Drug Action and Safety II Cr. 2**

Continuing survey of modern research topics in pharmacology. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 7777 Chemistry Biology Interface Seminar Series Cr. 1**

The Chemistry Biology Interface (CBI) seminar series will expose students to CBI-related research, CBI-related professional development activities, review of current literature, topics in rigor and reproducibility, and networking social activities. These activities will be in the format of presentations, panel discussions, workshops, small group discussions, or social activities. The goal is for graduate students from discipline-specific fields to move across a multi-disciplinary landscape, or for students already working in inter-disciplinary fields, such as chemical biology, to gain new expertise in specific disciplines. Beyond scholarly goals, the seminar series will enrich the graduate experience by providing career guidance, non-laboratory skill development, training in rigor and reproducibility, and professional networking. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 7777, CHM 7777

**PSC 7800 Research Techniques in Medicinal Chemistry Cr. 1-4**

Laboratory work employing modern techniques available in medicinal chemistry; application of basic principles to graduate study and research. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 16 Credits**

**PSC 7810 Research Techniques in Pharmaceutics Cr. 1-4**

Laboratory work employing modern techniques available in pharmaceutics: application of basic principles to graduate study and research. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 16 Credits**

**PSC 7820 Research Techniques in Pharmacology Cr. 1-4**

Laboratory work employing some of the modern techniques available in pharmacology, including the application of basic principles to graduate study and research. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 16 Credits**

**PSC 7850 Pharmaceutical Sciences Colloquium Cr. 1**

This course is a required seminar course for all graduate students in the Department of Pharmaceutical Sciences. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 10 Credits**

**PSC 7860 Introduction to Seminar Cr. 1**

A required seminar course for all first year graduate students in the Department of Pharmaceutical Sciences. Students will be required to present a seminar on their research progress during their first year in the program. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 7870 Second Year Seminar Cr. 1**

A required seminar course for all second year PhD students in the Department of Pharmaceutical Sciences. Students will be required to present a seminar on a topic unrelated to their research. Offered Fall, Winter.

**Prerequisites:** PSC 7860 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSC 7880 Third Year Seminar Cr. 1**

A required seminar course for all third year PhD students in the Department of Pharmaceutical Sciences. Students will be required to present a seminar on their research. Offered Fall, Winter.

**Prerequisites:** PSC 7870 with a minimum grade of C

**PSC 7999 Master's Essay Direction Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 4 Credits**

**PSC 8650 Special Topics in Medicinal Chemistry Cr. 2**

Recent developments in medicinal chemistry. Topics under investigation and of current interest offered in different semesters. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 16 Credits**

**PSC 8660 Special Topics in Pharmaceutics Cr. 2**

Recent developments in pharmaceutics. Topics under investigation and of current interest offered in different semesters. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 16 Credits**

**PSC 8670 Special Topics in Pharmacology Cr. 2**

Recent developments in pharmacology. Topics under investigation and of current interest offered in different semesters. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 16 Credits**

**PSC 8888 Survey of Research at the Chemistry Biology Interface Cr. 3**

The Chemistry Biology Interface course will teach students how to apply chemical approaches to study complete biological processes. It will commence with a basic overview of the biochemistry of biomolecules. Next, complex biological processes related to various diseases will be highlighted by introducing cell biology, model cells and organisms, and disease mechanisms. Finally, the course will highlight contemporary examples of how chemical methods are used to answer complex biological questions to show the value and innovation available by taking a multidisciplinary approach. The focus will be on development of skill sets that are applicable for research at the chemistry biology interface, rigor and transparency in data collection and analysis, and identification of cross-disciplinary research at Wayne State. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 8888, CHM 8888, PHC 8888, PSL 8888

**PSC 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 8 Credits**

**PSC 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 12 Credits**

**PSC 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PSC 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate or Professional level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## PSL - Physiology

**PSL 5010 Individual Research I Cr. 2-5**

Direct participation in laboratory research in the physiological sciences under the supervision of a departmental faculty advisor. Introduction to experimental protocol and current related scientific literature. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**Repeatable for 5 Credits**

**PSL 5200 Embryology: Premedical Studies Cr. 2**

Students will learn the sequence of development of the human body from fertilization through the formation of the three-dimensional embryo, the contribution of various germ layers and precursors to definitive structures, including the role of cell interactions, induction, growth, and differentiation, and describe the origin of commonly occurring malformations in terms of abnormal developmental processes. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Premedical Studies; enrollment is limited to Graduate level students.

**PSL 5250 Biochemistry: Premedical Studies Cr. 2**

This course is a comprehensive exploration of biochemistry, delving into protein and lipid structure, intermediary metabolism, individual metabolic pathways for carbohydrates and lipids, and the transmission of genetic information. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Premedical Studies; enrollment is limited to Graduate level students.

**PSL 5300 Physiology: Premedical Studies Cr. 2**

This course teaches basic concepts in physiology to prepare the student to successfully complete first-year MD program physiology topics. The course is also designed to teach effective learning methods. Specific topics covered are: cell physiology, electrophysiology, vascular physiology, cardiac physiology, pulmonary physiology, and renal physiology. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Premedical Studies; enrollment is limited to Graduate level students.

**PSL 5400 Histology: Premedical Studies Cr. 2**

Students will demonstrate the ability to identify the cells, tissues, and organs of the human body at the light microscopic level, identify significant fine structural features of cells or tissues as viewed with transmission electron microscopy, scanning electron microscopy, freeze-fracture electron microscopy, immunocytochemistry, or other selected research techniques, and to correlate the specialized or unique histological structural features at the light and electron microscopic levels with their normal function in the human body. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Premedical Studies; enrollment is limited to Graduate level students.

**PSL 5450 Gross Anatomy: Premedical Studies Cr. 2**

Gross Anatomy is designed to assist students in acquiring knowledge of the human musculoskeletal system at a pace and depth similar to the first year of medical school. Students will learn the structural contents and anatomical relationships of the back & shoulder, arm, forearm, hand, gluteal region, thigh, leg, ankle, and foot. For each upper and lower extremity region, students are expected to learn how anatomical structures relate to function and how knowledge of normal anatomy can be applied to solve clinically relevant problems affecting the musculoskeletal system. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Premedical Studies; enrollment is limited to Graduate level students.

**PSL 5680 Basic Endocrinology Cr. 3**

Basic description of the human endocrine system, the endocrine control of several physiologic processes (growth, development, metabolism and reproduction), and a description of common endocrine disorders. Offered Fall.

**Prerequisites:** BIO 3200 with a minimum grade of C- or BIO 4120 with a minimum grade of C-

**Equivalent:** BIO 5680

**PSL 6010 Advanced Exercise Physiology Cr. 3**

Metabolic, neuromuscular, cardiovascular, and respiratory adjustments to acute and chronic exercise in health and disease, including body composition and weight control, nutritional considerations, and the effects of different environments on exercise performance. Offered Fall.



**PSL 6300 Biotechnology: Techniques and Applications Cr. 2**

Various biotechnical methodologies currently used in research and industry; application of these methodologies in scientific inquiries. Offered Fall.

**PSL 6310 Biotechnology: Techniques and Applications Lab Cr. 2-5**

Students choose one of the biotechnology techniques discussed in PSL 6300 and spend the semester in an active research laboratory learning the practice of the technique through hands-on experience. Offered Winter.

**Prerequisites:** PSL 6300 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7010 Basic Graduate Physiology Lecture I Cr. 4**

Introduction to basic human physiology. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7011 Basic Integrative Graduate Physiology I Cr. 4**

Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Physiology.

**PSL 7015 Introduction to Metabolism Cr. 2**

An introduction to intermediary metabolism of carbohydrate, lipids, amino acids and proteins. Focuses on the metabolic pathways involved in the synthesis and degradation of metabolites. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BMB 7015

**PSL 7020 Basic Graduate Physiology Laboratory I Cr. 2**

Introductory laboratory exercises to measure cell and membrane function; neuronal activity; electrophysiology; and hormonal actions. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Physiology.

**Fees:** \$50

**PSL 7030 Basic Graduate Physiology Lecture II Cr. 4**

Functional mechanisms of the human body. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7031 Basic Integrative Graduate Physiology II Cr. 4**

Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Physiology.

**PSL 7040 Basic Graduate Physiology Laboratory II Cr. 2**

Experimental physiology of organ systems. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Physiology.

**Fees:** \$50

**PSL 7060 Current Literature in Physiology Cr. 1**

Students are required to present published papers at least once each semester, and must attend all class meetings. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7120 Cardiovascular Systems Modeling Cr. 4**

Application of engineering principals and mathematical and computational techniques to cardiovascular systems. Partial differential equations, signal transduction pathway and biotransport modeling, and introduction to systems biology approaches. Offered Winter.

**Prerequisites:** BME 5010 with a minimum grade of B- or BME 5020 with a minimum grade of B-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BME 7020

**PSL 7180 Nutritional Metabolomics and Bioinformatics Cr. 3**

Introduction to and application of the "omics" technologies to nutrition: genomics, proteomics, and metabolomics. Examples and exercises using bioinformatic software for multivariate data analyses. Offered Winter.

**Prerequisite:** NFS 6000 with a minimum grade of C- and STA 1020 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** NFS 7000

**PSL 7215 Nanobioscience Cr. 3**

Introduction to interdisciplinary research field of nanobioscience, at the interphase of biology, chemistry, and physics; specific properties of nanoscale objects. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7220 Metabolism and Disease Cr. 2**

This course will review normal metabolic pathways and their regulation and then discuss in depth aberrant metabolism as it contributes to or causes diseases such as diabetes, cancer, and neurodegeneration. Didactic lectures will be complemented with student-based presentations of classic and current primary literature studies. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** MGG 7020

**PSL 7350 Psychosocial Perspectives of Health Care: Premedical Studies Cr. 2**

Psychosocial Perspectives of Health Care explores various psychosocial and non-cognitive topics relevant to the personal growth and development of future physicians. The course is designed to prepare students for the psychosocial aspects of medical training and patient care by analyzing practices and workplace scenarios, in which many underrepresented medical students and practicing physicians face. In addition, the course provides students an opportunity to reflect on their journey which led them to medical school, share their life experiences, and recognize any personal biases through class group discussions. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Premedical Studies; enrollment is limited to Graduate level students.

**PSL 7400 Sleep and Breathing in Health and Disease Cr. 2**

This course is designed to expose students to topics in respiratory control during wakefulness and sleep in healthy individuals and individuals with sleep apnea and/or spinal cord injury. Advanced topics in respiratory physiology; guidance in critical reading and discussion of the literature. Offered Every Other Winter.

**Prerequisite:** PSL 7030 with a minimum grade of C or PSL 7031 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate or Medical level students.

**PSL 7420 Organizing and Communicating Hypothesis Testing in Physiology Cr. 2**

Understanding the development of physiologically relevant hypotheses, testing hypotheses, and both written and oral presentation of physiologic studies/proposals. Students will develop substantial components of a training fellowship proposal. Offered Winter.

**Prerequisite:** PSL 7011 with a minimum grade of C and PSL 7031 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7490 Translational and Integrative Physiology Cr. 4**

This course focuses on selected, current topics in physiology with the intention of highlighting and bridging basic physiological principles with clinical diseases, diagnostic approaches, or therapies. The course will provide an in-depth, interactive lecture session discussing physiological principles from laboratory to clinic by paired instructors: a basic scientist and a clinician in the respective field (e.g., cardiac physiology/cardiology). The lecture session will be followed by a second session wherein one or two papers that provide either classic or state-of-the-art investigations that are translational in nature and are grounded in the material from the previous lecture session. The course is team taught with faculty who have appropriate expertise in a given area leading the didactic/discussion sessions. Offered Winter.

**Prerequisites:** (PSL 7010 and PSL 7011) and (PSL 7030 and PSL 7031)

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7550 Advanced Renal Physiology Cr. 2**

A detailed study of the physiological mechanisms promoting homeostasis of the body fluid volumes and ionic composition in the mammal. Offered Every Other Fall.

**Prerequisites:** PSL 7030 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7600 Advanced Cardiovascular Physiology Cr. 2**

Basic principles of heart dynamics and control techniques in measurement of cardiac function. Offered Fall.

**Prerequisites:** PSL 7030 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physiology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy or Master of Science degrees.

**PSL 7640 Cell and Molecular Physiology Cr. 3**

Lecture and discussion. Research in atomic force microscopy, molecular structure, exocytosis, insulin signal transduction, glucose transport, estrogen receptors, ion channels, Na, K-ATPase, Na/Ca exchanger, hormonal regulation of ion transport. Offered Every Other Winter.

**Prerequisites:** PSL 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7660 Advanced Neurophysiology Cr. 3**

Current topics in cognitive neurosciences ranging from cellular and molecular aspects to systems, network dynamics, and cognitive functions as well as neurological diseases. Offered Every Other Fall.

**Prerequisites:** PSL 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7680 Endocrinology Cr. 4**

A detailed emphasis on current research. Student participation encouraged; each student required to present a one hour lecture. Offered Winter.

**Prerequisites:** PSL 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7685 Reproductive Physiology Seminar Cr. 1**

The seminar covers principles and translational components of reproduction and associated disease states including endocrinology, infertility, contraception, recurrent pregnancy loss, menopause, and reproductive immunology. This weekly seminar series exposes students to the work of their departmental peers and faculty, as well as external speakers who are invited monthly, and it aims to broaden the knowledge and expertise of the participating students in the field of reproductive biology. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**PSL 7690 Principles and Techniques of Reproductive Biology Cr. 3**

Principles and techniques in reproduction including endocrinology, gametogenesis, fertilization, implantation, embryogenesis, stem cell determination, pregnancy and parturition. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** IBS 7690

**PSL 7700 Embryonic Stem Cell Biology Cr. 3**

Methods involved in production and utilization of embryonic stem cells. Lectures supplemented with text, reviews, and recent papers. Offered Every Other Winter.

**Prerequisite:** PSL 7690

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7710 Disease States and Reproductive Processes Cr. 1**

Diseases and areas in reproductive medicine where additional research is required. Students accompany clinicians during rounds in hospital and out-patient clinics. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Medicine; enrollment is limited to Graduate level students.

**PSL 7730 Reproductive Sciences: Teratology Cr. 3**

Principles of the science of birth defects; focus on impact of environmental poisons, medicines, and drugs of abuse on developing germ cells, embryos and fetuses. Roles of pharmacological/toxicological, physiological (maternal, placental, and fetal), genetic and nutritional factors in the teratogenic response are examined. Texts and current readings. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** PHC 7730

**PSL 7775 Current Research Topics in Reproductive Science Cr. 3**

Covers principles and translational components of reproduction and associated disease states including, endocrinology, infertility, contraception, recurrent pregnancy loss, menopause and reproductive immunology. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7825 Membrane Physiology: Protein Transport, Lipid Metabolism and Human Diseases Cr. 2**

Covers the basic concepts of membrane transport in the mammalian secretory pathway with an emphasis on the dysregulation of key transport steps and the defective mutations of key regulators which lead to human diseases (e.g. neurodegenerative diseases, diabetes and coronary heart diseases). Offered Winter.

**Prerequisite:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 7880 Special Problems in Physiology Cr. 1-8**

Topics individually arranged with faculty. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PSL 7890 Seminar Cr. 1**

For graduate students in physiology. Participation in weekly departmental seminars. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**PSL 7996 Arranged Research Cr. 1-15**

Graduate level experiences in research techniques. Special research topics in specified areas arranged with individual faculty member. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 15 Credits**

**PSL 8888 Survey of Research at the Chemistry Biology Interface Cr. 3**

The Chemistry Biology Interface course will teach students how to apply chemical approaches to study complete biological processes. It will commence with a basic overview of the biochemistry of biomolecules. Next, complex biological processes related to various diseases will be highlighted by introducing cell biology, model cells and organisms, and disease mechanisms. Finally, the course will highlight contemporary examples of how chemical methods are used to answer complex biological questions to show the value and innovation available by taking a multidisciplinary approach. The focus will be on development of skill sets that are applicable for research at the chemistry biology interface, rigor and transparency in data collection and analysis, and identification of cross-disciplinary research at Wayne State. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BIO 8888, CHM 8888, PHC 8888, PSC 8888

**PSL 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PSL 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PSL 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PSL 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PSL 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PSL 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSL 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## PSY - Psychology

**PSY 1010 Introductory Psychology Cr. 4**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry

Grade of C or better required for psychology majors. Introduction to the science of behavior. Principles, concepts, and theories of human thought and action. Selected concepts illustrated through laboratory experiments. Recommended for students intended to major in psychology. Meets General Education Laboratory Requirement. No credit after PSY 1020. Offered Every Term.

**PSY 1020 Elements of Psychology Cr. 3**

**Satisfies General Education Requirement:** Life Sciences, Natural Scientific Inquiry

Principles, theories and applications of psychological knowledge.

Intended for non-psychology majors. No credit after PSY 1010. Offered Every Term.

**PSY 1030 Introductory Psychology Laboratory Cr. 1**

Principles, concepts and theories of human thought and behavior illustrated through laboratory experiments. Required of psychology majors who have AP Psych credit or took PSY 1020 to complete Introductory Requirement; Grade of C or better required for psychology majors. No credit after PSY 1010. Offered Every Term.

**Prerequisites:** PSY 1020 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**PSY 2020 Research Methods In Psychology Cr. 4**

Basic principles of research design in psychology and measurement of psychological constructs. Students must take lecture and corresponding lab. Psychology majors must earn C or better. Students are strongly urged to complete PSY 2020 at or before the completion of 45 credits. Course study and/or tutoring is available for this course. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of C or PSY 1030 with a minimum grade of C

**PSY 2030 Statistical Methods in Psychology Cr. 4**

Primarily for psychology majors. Principles and computational methods that apply to quantitative aspects of psychological procedure; elementary correlation theory and prediction, sampling problems, tests of hypotheses, elementary test theory, interpretation of results. Students will learn how to use statistic software SPSS. Psychology majors must earn C or better and are strongly urged to complete PSY 2030 at or before the completion of 60 credit hours. Course study and/or tutoring is available for this course. Offered Every Term.

**Prerequisites:** PH 2100 with a minimum grade of C- and (MAT Permit to Reg ACT/SAT with a test score minimum of 4, Math Permit to Reg - (L1-L4) with a test score minimum of 4, STA 1020 with a minimum grade of C-, MAT 1800 with a minimum grade of C-, MAT 2010 with a minimum grade of C-, MAT 2020 with a minimum grade of C-, or STA 2210 with a minimum grade of C-)

**PSY 2080 Introduction to Drugs, Behavior, and Society Cr. 3**

Introduction to drugs and their actions. Emphasis on psychoactive drugs, their effects, and the consequences of their use and misuse to the individual and society. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 2100 Psychology and the Workplace Cr. 3**

Psychology applied to workplace issues. Major topics include organizational staffing, employee training and development, organizational leadership, employee attitudes and motivation, organizational culture and climate, and employee health and well-being. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 2300 Psychology of Everyday Living Cr. 4**

Applications of psychological principles to everyday life. How research can be used to guide positive self-change in various contexts (e.g., stress, psychological problems, personality, persuasion, attitudes). Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 2400 Developmental Psychology Cr. 4**

Facts, principles, theories of psychological development throughout the lifespan. Development of intellectual, emotional, perceptual, linguistic, and social behavior. Developmental trends. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 2410 Health Psychology Cr. 4**

Clinical, social, developmental, and biopsychosociological theory and research on relationship of psychological and behavioral factors to physical health and well-being. Positive and negative health behaviors, stress and coping, social relations and social support, psychoneuroimmunology, patient-practitioner interaction and health utilization, management of chronic illness. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 2450 Developmental Psychology Service Learning Laboratory Cr. 1**

The laboratory involves a project related to development that serves a community need and is conducted within the community. Participation in the project is intended to result in deeper learning of the course content in PSY 2400. Offered Intermittently.

**Prerequisites:** (PSY 1010 or PSY 1020) and PSY 2400 (may be taken concurrently)

**PSY 2600 Psychology of Social Behavior Cr. 4**

Social behavior of the individual as influenced by the group. Particular attention given to social perception, motivation, and learning; attitudes and values; dynamics of social groups. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 2650 Minds and Machines Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry

Central examples of these questions and proposed answers: Is our mind just a piece of software that our brain is running? Can AI exercise moral agency? Are minds physical things? Are we much less rational than we think? How can we understand each other's minds? Can there be laws in psychology? What is consciousness, and can it be studied scientifically? We will address these and other questions via the work of philosophers, psychologists and cognitive scientists. Offered Winter.

**Equivalent:** PHI 2650

**PSY 3000 Evolutionary Psychology Cr. 3**

Application of evolutionary theory to the study of human behavior, including favoritism of kin, sex differences in behavior and anatomy, and life history strategies. Introduction to behavioral genetics. Description of various facets of a given behavior: its development, neural and hormonal mechanisms, phylogenetic distribution, and adaptive value, with examples. Interaction between genetic and environmental influences on behavior, including cultural values. No credit after BIO 4220. Offered Fall.

**Prerequisite:** PSY 1010 or PSY 1020

**PSY 3040 Psychology of Perception: Fundamental Processes Cr. 3**

Fundamental theories, concepts, and empirical studies of basic sensory processes and the perception and organization of sensory phenomena. Offered Fall, Winter.

**PSY 3060 Psychology of Learning and Memory: Fundamental Processes Cr. 3**

Fundamental theories, concepts, and empirical findings in field of learning. Offered Fall, Winter.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 3080 Cognitive Psychology: Fundamental Processes Cr. 3**

Fundamental theories, concepts, and empirical findings in study of human cognition. Topics include: thinking, problem solving, language comprehension and production, memory and attention. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**Equivalent:** LIN 3080

**PSY 3120 Brain and Behavior Cr. 3**

Introduction to the brain and its influence over behavior. Structure and function of the nervous system, neural communication, and neural mechanisms of higher nervous system functions and dysfunctions. Topics include: biological basis of sleep, sex, learning, memory, language, schizophrenia, and depression. No credit after PSY 3330. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 3200 Motivation, Feeling and Emotion Cr. 3**

Experimental findings in psychological and allied fields on topics of motivation, feeling, and emotion; evaluation of classical theories and an attempt to develop a theoretical approach based on factual knowledge. Offered Intermittently.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 3250 Psychology of Gender Cr. 3**

Evidenced-based understanding of similarities and differences between women and men in domains such as cognitive skills, aggression, empathy, communication, emotional expression and mental health. Exploration of biological, psychological and social theories used to explain gender identity and expression. Focus on historical and current issues related to the psychology of women, including relationships, careers and health. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 3310 Abnormal Psychology Cr. 4**

Nature and causes of various forms of abnormal behavior, including schizophrenia, depression, and neurosis, viewed from psychological, biological, cultural, developmental and historical perspectives. Diagnosis and treatment of pathological behavior. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 3330 Systems Neuroscience Cr. 3**

Systems Neuroscience explores the brain circuits that contribute to regulatory (i.e., sexual differentiation and reproductive behavior, reward and addiction, aggression and violence, physical and social pain), and higher order (i.e., learning and memory, cerebral lateralization and consciousness) experiences and behaviors. Changes in neural circuits that contribute to disorders of thought (schizophrenia), emotion (anxiety) and sensory processing (chronic pain), and neurobiological strategies for their remediation also are explored. Offered Winter.

**Prerequisite:** BIO 3200 with a minimum grade of C-

**PSY 3350 Psychology of Personality Cr. 3**

An examination of the major approaches to the study of personality. Current psychological findings in the field of personality and their implications for psychotherapy and assessment. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-



**PSY 3380 Human Sexuality Cr. 3**

Biological, psychological and socio-cultural aspects of human sexuality. Topics include anatomy and development, sexual behavior, and cultural influences. Offered Every Term.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 3430 Infant Development Cr. 3**

Development of the infant from conception through the toddler years. Physical, motor, perceptual, cognitive, language, social and emotional development. Current findings and their implications for parenting, programming and care. Offered Yearly.

**Prerequisites:** PSY 2400 with a minimum grade of D-

**PSY 3440 Psychology of Child Behavior and Development Cr. 3**

Developmental processes in childhood; language acquisition, cognitive development, development of peer-peer interactions. Offered Yearly.

**Prerequisites:** PSY 2400 with a minimum grade of D-

**PSY 3460 Psychology of Adolescent Behavior and Development Cr. 3**

Factors that promote the emergence of new relationships with parents, changes in peer relationships, increased independence, preparation for marriage and parenthood, and socioeconomic integration into the larger society. Biological and anthropological perspectives on sex roles. Offered Yearly.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**PSY 3480 Parent-Child Interaction Across the Lifespan Cr. 3**

Theory and research on interactions between parents and children. Focus on normal developmental concerns, infancy through adulthood: discipline, sibling rivalry, sex-role identification, parental support. Offered Yearly.

**Prerequisites:** PSY 2400 with a minimum grade of D-

**PSY 3490 Psychology of Adult Development and Aging Cr. 3**

The adulthood and aging years from a developmental perspective, including: intelligence, memory, personality, and social behavior. Offered Intermittently.

**Prerequisites:** (PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-) and PSY 2400 with a minimum grade of D-

**PSY 3993 Laboratory in Experimental Psychology Cr. 2**

**Satisfies General Education Requirement:** Writing Intensive Competency Lab investigations of perceptual, sensory, learning, or cognitive processes. This capstone course will culminate in the writing of a research proposal. Course unique to WSU; students must complete course at WSU. Offered Every Term.

**Prerequisites:** PSY 2020 with a minimum grade of C, PSY 2030 with a minimum grade of C, and (ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C)

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$15

**PSY 4140 Hormones and Behavior Cr. 3**

Examines the relationship between hormones and behavior, taking a biological approach to behavioral questions that have long been of interest to Psychologists, Biologists and Neuroscientists. Explores the research area of Behavioral Endocrinology, a field that seeks biologically (in particular hormone)-based explanations of behavior. Offered Winter.

**Prerequisites:** PSY 1010 with a minimum grade of C and (PSY 3120 with a minimum grade of C or PSY 3330 with a minimum grade of C)

**Equivalent:** BIO 4140

**PSY 4310 Psychological Disorders of Children Cr. 3**

Points of view, methods of study and research findings regarding psychopathology in children. Offered Fall.

**Prerequisites:** PSY 1010 with a minimum grade of C or PSY 1020 with a minimum grade of C

**PSY 4320 Introduction to Clinical Psychology Cr. 3**

An introduction to the methods, rationale, and empirical foundations of clinical psychology. Issues in the assessment and treatment of psychopathology. Offered Yearly.

**Prerequisites:** PSY 1010 with a minimum grade of C or PSY 1020 with a minimum grade of C

**PSY 4330 Social Psychology of Close Relationships Cr. 3**

Scientific study of close relationships, with a focus on romantic relationships. Current theories and research findings on various dynamics of relationship functioning from a social psychological perspective. Offered Intermittently.

**Prerequisite:** PSY 2600 with a minimum grade of D-

**PSY 4990 Directed Study and Research Cr. 2-4**

Library or laboratory study of an advanced problem in psychology under the guidance of a faculty member. Offered Every Term.

**Repeatable for 9 Credits**

**PSY 4991 Honors Directed Study Cr. 2-4**

Honors library or laboratory study of advanced problem in psychology under guidance of a faculty member. Offered Every Term.

**Repeatable for 9 Credits**

**PSY 4994 Special Projects Cr. 1-4**

Departmental assignment to special projects for advanced students. Offered Every Term.

**Prerequisite:** PSY 1010 with a minimum grade of C or PSY 1030 with a minimum grade of C

**Repeatable for 12 Credits**

**PSY 4995 Special Topics in Psychology Cr. 3**

Topics of current interest to be announced in Schedule of Classes . Offered Intermittently.

**Prerequisites:** PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-

**Repeatable for 6 Credits**

**PSY 4998 Senior Thesis Cr. 3**

Research leading to the design and execution of a senior honors thesis in psychology. Offered Every Term.

**Prerequisites:** PSY 2020 with a minimum grade of C, PSY 2030 with a minimum grade of C, and PSY 3993 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Psychology Honors.

**PSY 5020 Honors Research in Psychology Cr. 3**

Critical evaluation of scientific literature and the planning and development of psychological research proposals. Offered Fall.

**Prerequisites:** PSY 2010 with a minimum grade of C, PSY 2020 with a minimum grade of C, and PSY 3993 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Psychology Honors.

**PSY 5040 Cognitive Neuroscience Cr. 3**

Brain processes and brain structures that support them, framed in terms of theoretical models and empirical evidence from brain imaging techniques and patient populations. Topics include attention, memory, space, language, and decision-making. Offered Yearly.

**Prerequisites:** PSY 3120 with a minimum grade of C or PSY 3330 with a minimum grade of C

**PSY 5070 Neuropharmacology Cr. 3**

Physiological and behavioral bases of drug action, with emphasis on brain neurotransmitters, psychopharmacology, and substance abuse disorders. Offered Fall.

**Prerequisites:** PSY 1010 with a minimum grade of C and (PSY 3120 with a minimum grade of C or PSY 3330 with a minimum grade of C)

**PSY 5080 Cellular Basis of Animal Behavior Cr. 3**

Relationship between behavior and neuroscience using a variety of animal models, each examined from the level of natural behavior progressively to the cellular level. Topics include: sensory systems, motor behavior, and learning. Offered Winter.

**Equivalent:** BIO 5080

**PSY 5100 Applied Statistics in Psychology Cr. 4**

General linear model, coding techniques, multiple correlation and regression, analysis of variance and covariance, planned and post hoc tests, use of statistical computer packages. Offered Every Term.

**Prerequisites:** PSY 2020 with a minimum grade of C

**PSY 5330 Human Neuropsychology Cr. 3**

History of the development of human neuropsychology. Neuropsychological mechanisms underlying behavior and mental processes: sensory-motor mechanisms; integrative action of the nervous system; mechanisms involved in emotional behavior and learning and memory. Current perspectives of theories of brain organization and function and empirical foundations of neuropsychological assessment. Offered Yearly.

**Prerequisites:** (PSY 1010 with a minimum grade of D- or PSY 1020 with a minimum grade of D-) and (PSY 3120 with a minimum grade of C or PSY 3330 with a minimum grade of C)

**PSY 5360 Child Language Acquisition Cr. 3**

Despite its complexity and abstractness, young children acquire language without conscious effort or explicit instruction in a span of just a few years. This feat is unique to humans and is unmatched by any other species or even the most sophisticated computers. The course will present a comprehensive introduction to the study of child language acquisition. We will use a cross-linguistic approach to discuss some of the most important issues in language acquisition. We will not only talk about what children accomplish linguistically at various ages, but also discuss various theoretical approaches to explaining how children acquire linguistic knowledge in different domains, focusing on acquiring the sound inventory, words and sentence structure. We will look at some of the methods that have been employed to collect and analyze child language data. Offered Fall.

**Equivalent:** ENG 5360, LIN 5360

**PSY 5440 Developmental Neuropsychology Cr. 3**

Neurobiology of development. Topics include: neuroplasticity throughout the life span, maturation of the brain and neural connectivity, neurodevelopment of behavioral, emotional, social and cognitive functions. This course will bridge human behavioral and animal models to illustrate the dexterity and limitations of available scientific methods to study developmental neuropsychology. Offered Intermittently.

**Prerequisites:** PSY 1010 with a minimum grade of C and (PSY 3120 with a minimum grade of C or PSY 3330 with a minimum grade of C)

**PSY 5700 The Psychology of African Americans Cr. 4**

Methodological approaches to and theories of Black behavior and personality development. Topics include: race and pathology, life-span and psycho-sexual development, personality formation, social and environmental stress and adaptation. Offered Every Term.

**Equivalent:** AFS 5700

**PSY 5710 Dispute Resolution Cr. 3**

Overview of the processes and actors in the field of dispute resolution including negotiation, mediation, arbitration, and conciliation. Offered Yearly.

**Equivalent:** CRJ 5994, PCS 5000, PS 5890

**PSY 5900 Culture, Language and Cognition Cr. 3**

Systematic investigation of the relationships among, language, cognition and culture, including issues relating to human universals, cross-cultural concept formation, metaphor, classification and the evolution of cognition and language. Offered Every Other Winter.

**Prerequisites:** ANT 3310 with a minimum grade of D-, ANT 5320 with a minimum grade of D-, LIN 3310 with a minimum grade of D-, LIN 5320 with a minimum grade of D-, LIN 3080 with a minimum grade of D-, or PSY 3080 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to Graduate or Undergraduate level students.

**Equivalent:** ANT 5900, LIN 5900

**PSY 6010 Equitable Partnerships with Families and Communities Cr. 3**

Theory and research-based strategies that support equitable collaboration between professionals and families to best meet the needs of children. Explores family and community contexts as assets for learning. Emphasis on culturally and linguistically responsive approaches to learn about and leverage family strengths and priorities, as well as communication strategies for making shared decisions with families. Offered Fall.

**Equivalent:** ELE 6010, SW 6010

**PSY 6020 Political Psychology Cr. 3**

Political attitudes and behavior of both ordinary citizens and political elites using theory and research that adopt a psychological perspective. Topics include: political socialization, ideological belief systems, role of mass media in shaping beliefs and attitudes, race and gender stereotypes and their psychological and political consequences, personality and the dynamics of political leadership. Offered Yearly.

**Equivalent:** PS 6010

**PSY 6200 Development of Memory Cr. 3**

Major theoretical models of memory development will be discussed and used to explore various aspects of the memory process from infancy to adulthood. Offered Intermittently.

**Prerequisites:** PSY 3080 with a minimum grade of D- or PSY 2400 with a minimum grade of D-

**PSY 6500 Advanced Psychological Statistics Cr. 3**

Review of core statistical procedures; in-depth exploration of concepts of correlation and regression. Brief review of descriptive statistics and methods of statistical inference. Statistical software will be introduced and used. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy.

**PSY 6510 Organization Theory Cr. 3**

Work organization theories, and history of social modeling; classical, neoclassical, and open system of contingency theories. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy.

**PSY 6520 Organizational Behavior Cr. 3**

Employee motivation, job attitudes, leadership and management development; related aspects of organizational behavior, design and development. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy.

**PSY 6535 Psychometric Theory Cr. 3**

Development, validation, and use of psychological tests and other psychological instruments. Origins and value of psychological testing. Offered Yearly.

**Prerequisites:** PSY 6500 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy.

**PSY 6550 Training and Employee Development Cr. 3**

Theory and practice of organizational training, employee development, and management development; establishment of performance standards, performance appeal process, evaluation of training and development programs. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy.

**PSY 6570 Research Methods in Industrial/Organizational Psychology Cr. 3**

Field and lab research methods for workplace settings. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy.

**PSY 7010 History and Systems of Psychology Cr. 2-3**

History and philosophical ideas that have influenced development of the scientific field of psychology. Core issues in philosophy of science; their integration with major theories, philosophies and trends in development of modern psychology. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7080 Human Cognition Cr. 3**

Unified approach to human cognitive activity, including perception, attention, memory, language, concepts, and problem solving. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7120 Biological Basis of Behavior Cr. 3**

Major literature relating the anatomy of the nervous system to psychological processes. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7150 Quantitative Methods in Psychology I Cr. 4**

Introduction to statistical inference for psychologists. Bivariate measures of relationship and associated statistical tests: chi square, t-test, F test and selected rank order tests. Research methods including randomized designs, repeated measures, counter-balancing and Latin square designs, and quasi-experimental designs common to applied social science research, such as matched case controls, pre- and post- designs, and interrupted time-series. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7160 Psychometrics and Factor Analysis Cr. 3**

Psychometric theory and psychological measurement including Factor Analysis and Item Response Theory. Offered Winter.

**Prerequisites:** PSY 7150 with a minimum grade of C (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7200 Psychological Assessment I Cr. 4**

Psychometric theory and application emphasizing reliability, validity, utility and interpretation of selected intelligence, achievement, and objective personality tests, including the WAIS-IV and MMPI-2. Required lab section includes individual supervision on interviewing, testing, and report writing. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7210 Psychological Assessment II Cr. 4**

Half of the course covers child intellectual and academic assessment, based on measures such as the WISC-IV and WIAT-II. The other half addresses adult personality assessment, based on measures such as the Rorschach and TAT. Emphasis on providing feedback and writing reports for clients. Required lab section includes individual supervision on interviewing, testing and report writing. Offered Winter.

**Prerequisites:** PSY 7200 with a minimum grade of B (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7230 Assessment Practicum Cr. 1**

Students learn to conduct psychological assessments of adults and children. Skills taught include how to: a) generate clinical hypotheses; b) interview patients; c) select, administer, score, and interpret a range of psychological measures; d) integrate findings to answer assessment questions; e) write assessment reports; f) give feedback; and g) both receive and provide supervision. Unique aspects of assessing specific clinical conditions or disorders will be covered. Students will present cases based on assessments they conduct in the departmental training clinic. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**PSY 7240 Ethics, Professional Issues, and Diversity Cr. 1**

Three separate sections of this course focus on ethical principles as applied to practice, research and teaching, human diversity. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**Repeatable for 3 Credits**

**PSY 7250 Theory of Personality Cr. 3**

Major approaches to the study of personality. Current psychological research and issues in the field; implications for psychotherapy and assessment. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**PSY 7270 Research Methods in Clinical Psychology Cr. 3**

Examines a range of methods that address the most commonly asked questions in the science of clinical psychology. Topics include defining research questions, reviewing literatures, designing studies, collecting data, and interpreting data. Specific topics include observational methods, longitudinal designs, clinical trials, program evaluation, mediators and moderators, publishing, and grant writing. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**PSY 7290 Diversity, Systems, and Inequality Cr. 3**

Focuses on the impact of diversity, systems, and inequality in the U.S. on the field of psychology. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7300 Psychopathology Cr. 1,2**

Basic psychological concepts of psychopathology with a focus on adult disorders. Current theory and research and their implications for clinical practice. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**PSY 7310 Developmental Psychopathology Cr. 3**

Processes of development as they relate to emergence and course of psychopathology from conception through young adulthood; theory and research on major forms of psychopathology with childhood and adolescent onset. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7330 Clinical Neuropsychology Cr. 3**

History of the development of clinical neuropsychology. Current perspectives of theory and empirical foundations of neuropsychological assessment. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7340 Neuropathology and Behavior Cr. 3**

Discussion of the current state of neuropathology and its cognitive consequences. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7370 Psychological Interventions I Cr. 3**

Survey of intervention development, theory and research; focus on empirically-supported individual psychotherapy for adults and evidenced-based therapeutic processes. Offered Fall.

**Prerequisites:** PSY 7300 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7380 Psychological Interventions II Cr. 3**

Survey of intervention development, theory and research; focus on evidence-based interventions for children and adolescents as well as systems (families, groups, communities). Offered Winter.

**Prerequisites:** PSY 7370 with a minimum grade of B (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7400 Introduction to Life-Span Developmental Psychology Cr. 3**

Theory, methods and selected content areas; cognitive and social development as they relate to the entire life cycle. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7425 Psychology of Infant Behavior and Development Cr. 3**

Prenatal development and infancy through the toddler years. Major theoretical positions and research relating to motor, perceptual, cognitive, language, social, and emotional development. Implications for parenting, programming, and care. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7430 Developmental Assessment of Infants and Toddlers Cr. 3**

Overview of assessment methods; training in administration of the Bayley Scales of Infant development. No credit after PSY 6470. Offered Yearly.

**Prerequisite:** PSY 6420 with a minimum grade of C or PSY 7400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7440 Cognitive Development Cr. 3**

Current theoretical perspectives and related research on cognitive development in childhood; topics include cognition, memory, concepts, and language. Offered Intermittently.

**Prerequisite:** PSY 7400 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7450 Social Development Across the Life-Span Cr. 3**

Recent perspectives on the psychological and environmental factors affecting social development across the life-span. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7470 Interdisciplinary Research Methods in Social, Cognitive and Developmental Psychology Cr. 3**

Required of all first-year students in cognitive, developmental, and social psychology. Advanced survey of research design methods and issues across a broad array of social and behavioral fields, including cognitive, developmental, social, and personality psychology. Also covers Master's thesis development and ethical and professional issues. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7490 Psychology of Aging Cr. 3**

Provides foundational familiarity with the diverse conceptual and empirical contributions of psychology to the scientific study of aging. The study of aging, gerontology, is multidisciplinary activity, which this course will reflect by integrating psychological approaches to aging with models of aging grounded in biology, genetics, neuroscience, as well as the social sciences. Major topics studied include research methods and design, longevity, aging of the brain and the cardiovascular system, health and well-being, memory, intelligence, emotions, personality, social behavior, and psychopathology. Offered Intermittently.

**Prerequisite:** PSY 7400 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSY 7500 Research Methods in Industrial/Organizational Psychology Cr. 3**

Analysis of methodology and research design problems in the field of industrial psychology; discussion of professional and ethical problems. Offered Yearly.

**Prerequisite:** PSY 7150 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7510 Criterion Development and Performance Evaluation: Theory and Research Cr. 3**

Nature and kinds of criteria of job performance; development and measurement of criteria; problems and issues in performance evaluation. Offered Yearly.

**Prerequisites:** PSY 7500 with a minimum grade of B (may be taken concurrently) and PSY 7160 with a minimum grade of B (may be taken concurrently)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7520 Selection and Placement: Theory and Research Cr. 3**

Principles in development and evaluation of employee selection procedures; methods for establishing job-relatedness; problems and issues in evaluation and use of employee selection procedures. Offered Every Other Year.

**Prerequisites:** PSY 7500 with a minimum grade of B (may be taken concurrently) and PSY 7160 with a minimum grade of B (may be taken concurrently)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.



**PSY 7560 Leadership and Executive Development: Theory and Research Cr. 3**

Selected leadership research studies; theories relating to leadership; principles of training and development. Offered Every Other Year.

**Prerequisite:** PSY 7500 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7570 Industrial Motivation and Morale: Theory and Research Cr. 3**

Meaning of motivation and incentive as used in industry; research methods for study of motivation, job satisfaction, and morale; research data and interpretations in theoretical frameworks. Offered Every Other Year.

**Prerequisite:** PSY 7500 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7590 Industrial and Organizational Psychology Cr. 3**

Lecture, discussion, analysis of articles and chapters, in-class exercises. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7620 Social Psychology: Research and Theory Cr. 3**

Graduate-level introduction to the major theoretical and research areas of social psychology; current issues and research. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7645 Social Psychology of Close Relationships Cr. 3**

Social Psychological theory and research that examines the dynamics of close relationships, including relationship formation, maintenance, enhancement, and dissolution. Offered Every Other Year.

**Prerequisite:** PSY 7620 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 7745 Job Analysis and Performance Criteria Cr. 3**

Job analysis methods, criterion development, and performance appraisal. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy; enrollment is limited to Graduate level students.

**PSY 7750 Organizational Staffing Cr. 3**

Recruitment, screening, and personnel selection. Offered Yearly.

**Prerequisites:** PSY 7745 with a minimum grade of B (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy; enrollment is limited to Graduate level students.

**PSY 7770 Testing in the Workplace Cr. 3**

Test development; in-depth discussion of existing tests. Offered Yearly.

**Prerequisites:** PSY 6535 with a minimum grade of B (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy; enrollment is limited to Graduate level students.

**Fees:** \$100

**PSY 7780 Industrial/Organizational Psychology Cr. 1**

Approved internship field placement for a period of one semester to two years. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy; enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**PSY 7790 Capstone Course Cr. 3**

Special topics in I/O psychology. Students write a major paper or conduct an individual project. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Industrial/Organizational Psy; enrollment is limited to Graduate level students.

**PSY 7990 Directed Study Cr. 1-9**

For students who wish further study of technical literature of a problem systematically reviewed in a preceding course. Intensive and systematic reading of original literature (particularly journals) dealing with topic or problem. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**PSY 7991 Current Topics in Behavioral Neuroscience Cr. 1**

Discussion of current papers in the field. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PSY 7997 Research Problems Cr. 1-8**

Original research under direction of departmental staff. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 32 Credits**

**PSY 8000 Clinical Internship Cr. 1**

Approved placement in an APA accredited internship for a one- to two-year period. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**PSY 8040 Social Neuroscience Cr. 3**

Neurobiology of social cognition. Topics include: social communication, decision making, group dynamics, face/race processing, action and gesture cognition, emotional processing, development. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8050 Cognitive Neuroscience Cr. 3**

Concepts and methods used to study neurobiological basis of cognition, covering brain systems involved in perception, attention, memory, language, and decision making, as well as life-span development of brain, cognition and psychopathology. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8060 Functional Neuroanatomy Cr. 4**

Anatomical features of the human nervous system; emphasis on relationship between neural structure and behavior. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Fees:** \$15

**PSY 8065 Neurophysiology and Neural Plasticity Cr. 3**

Physiological and molecular properties of neurons and the relationship of neural plasticity to behavior and development. Offered Every Other Year.

**Prerequisites:** PSY 8060 with a minimum grade of C (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8070 Psychopharmacology Cr. 3**

Psychological and biological bases of psychopharmacology; emphasis on preclinical models and development of treatments for psychological disorders. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8140 Meta-Analysis Cr. 2-3**

Use of quantitative techniques for summarizing research results in psychology. Offered Spring/Summer.

**Prerequisites:** PSY 8150 with a minimum grade of B (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8150 Multivariate Analysis in Psychology Cr. 4**

Extension of the general linear model to multivariate statistical techniques, including: exploratory factor analysis and principal components analysis, confirmatory factor analysis, discriminant function analysis, canonical correlation analysis, and multivariate analysis of variance. Offered Winter.

**Prerequisite:** PSY 7150 with a minimum grade of B

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8170 Structural Equation Modeling Cr. 3**

Practical introduction to structural equation modeling. Offered Yearly.

**Prerequisites:** PSY 7160 with a minimum grade of B (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8190 Statistical Analysis of Longitudinal and Nested Data Cr. 3**

Extends the general linear model framework to the analysis of non-independent data including data that is hierarchically nested (persons within groups) and longitudinally nested (time within persons). Techniques covered include: Multilevel Models, Latent Growth Models, and Survival Analysis. Offered Fall.

**Prerequisite:** PSY 7160 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSY 8300 Health Psychology I Cr. 3**

Theoretical and empirical review of major topics in behavioral approaches to health and illness, including: 1) theories of health behavior and behavior change; 2) psychological impact of acute and chronic physical illness; and 3) health care utilization including health disparities, patient-provider communication, and psychosocial factors that affect adherence. . Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8310 Health Psychology II Cr. 3**

Applied issues in health psychology and behavioral medicine. Focus on research and practice related to assessment and intervention with medical populations and changing health behavior. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8320 Biobases of Health Psych Cr. 3**

Offered Every Other Year.

**Prerequisites:** PSY 8300 with a minimum grade of B or PSY 8310 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSY 8340 Clinical Neuropsychological Assessment Cr. 3**

Review of principles and literature on neuropsychological assessment, common neuropsychological tests and test batteries, in context of actual clinical cases. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8350 Community Psychology Cr. 3**

Current findings, theory, and research in the field of community psychology. Emphasis on current urban problems. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8390 Therapeutic Intervention Practicum Cr. 1**

Students learn to conduct evidence-based psychological interventions with adults, children, couples, and families. Skills taught include how to: a) develop case conceptualizations based on different theoretical models; b) apply techniques from motivational, cognitive-behavioral, relational, psychodynamic, and other therapies; c) develop and maintain the therapeutic alliance; d) track outcomes and modify approach as needed; e) terminate cases; and f) both receive and provide supervision. Unique aspects of intervening for specific clinical conditions or disorders will be covered. Students will present cases based on interventions they conduct in the departmental training clinic. Offered Every Term.

**Prerequisites:** PSY 7380 with a minimum grade of B (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**PSY 8440 Developmental Neuropsychology Cr. 3**

Neurobiology of development. Topics include: neuroplasticity throughout the life span, maturation of the brain and neural connectivity, neurodevelopment of behavioral, emotional, social and cognitive functions. This course will bridge human behavioral and animal models to illustrate the dexterity and limitations of available scientific methods to study developmental neuropsychology. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Psychology.

**PSY 8500 Seminar in Industrial/Organizational Psychology Cr. 1-3**

For industrial/organizational psychology students. Current topics in industrial psychology; content varies. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 15 Credits**

**PSY 8600 Seminar in Experimental Social Psychology Cr. 3**

Review and evaluation of the literature on some current topic of research or theoretical concern. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**PSY 8620 Social Cognition Cr. 3**

How mental representations underlie the processes of social thought and behavior. Students survey, evaluate, and discuss social cognition processes and research; group work to design and conduct tests of social-cognitive processes. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**PSY 8740 Seminar in Psychological Measurement and Statistics Cr. 2-3**

Topics in measurement and statistical analysis; exploratory data analysis and related problems; multidimensional scaling and clustering techniques; time series analysis; analysis of longitudinal data; item response theory and tailored testing; statistical power. Offered Intermittently.

**Prerequisites:** PSY 7160 with a minimum grade of B (must be taken at WSU)

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**PSY 8760 Seminar in Clinical Psychology Cr. 1-3**

New clinical methods and scientific developments in the field of clinical psychology. Meets with continuing education seminars in clinical psychology. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**PSY 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Psychology; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PSY 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PSY 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSY 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PSY 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSY 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PSY 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSY 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PSY 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PSY 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

## PT - Physical Therapy

**PT 5010 Clinical Applications I Cr. 1**

First part-time integrated clinical experience for physical therapy students. Orientation to clinical education and PT practice to develop professional behaviors, observation skills, fundamentals of written and verbal communication and basic examination and intervention skills in a clinical setting. Offered Winter.

**Fees:** \$20

**PT 5020 Foundations of Physical Therapy Cr. 2**

**Satisfies General Education Requirement:** Writing Intensive Competency Sociological and historical background of the PT profession. Professional behavior, patient care interaction and medical terminology. Basic physical therapy care procedures, documentation, patient education, care in medical emergencies. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$90

**PT 5030 Basic Patient Care in Physical Therapy Cr. 2**

Introduction to the basic skills necessary for patient care and provide a foundation to the theory and practice of basic patient care procedures for the Physical Therapist. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Physical Therapy degree; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$25

**PT 5070 Clinical Applications II Cr. 2**

Second part-time integrated clinical experience for physical therapy students. This clinical education course includes and orientation to basic and intermediate examination and intervention skills, professional behavior, communication, documentation, inter-professional collaboration and team work. Offered Fall.

**Prerequisite:** PT 5010 (may be taken concurrently)

**Fees:** \$30

**PT 5100 Therapeutic Exercise I Cr. 3**

Foundational course designed to focus on the principles and techniques of therapeutic exercise for patients with pathological conditions to the neuromusculoskeletal system. Students will develop and administer treatment plans for specific patient problems and progress treatment plans based on patient condition and response to treatment. Offered Fall.

**Prerequisite:** PT 5430 and PT 5500

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$100

**PT 5120 Human Growth and Development Cr. 2**

Theories and basic principles in prenatal, physical, sensorimotor, perceptual, cognitive, social, emotional and language growth and development. Implications for physical therapy evaluation and treatment of children with developmental disabilities. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$10

**PT 5300 Surface Anatomy Cr. 2**

Laboratory-based course teaching skills for soft tissue palpation, identification of surface anatomy landmarks, soft tissue mobilization and massage. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PT 5320 Basic Examination and Evaluation Procedures Cr. 3**

Lecture and laboratory experience focusing on principles and procedures of foundational medical screening, physical therapy differentiation, and clinical reasoning and decision-making skills; basic principles and techniques for posture, integumentary, neurological, range of motion, and strength examination and evaluation, documenting progress and outcome, and the continued development of patient care skills. Offered Winter.

**Prerequisite:** PT 5030 and PT 5300 and PT 5505

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$10

**PT 5400 Neurosciences for Health Care Professionals Cr. 3**

Study of the human central nervous system; emphasis on sensory and motor systems and structures that contribute to normal movement. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$50

**Equivalent:** OT 5400

**PT 5410 Clinical Medicine I Cr. 3**

Designed to provide specific information needed by the physical therapist treating patients with a variety of diseases. Pathology, etiology, clinical signs and symptoms, prognosis, and treatment of a variety of illnesses and conditions relevant to physical therapy treatment are covered. The role of other health care specialists including physician, occupational therapist, speech pathologist, nurses and psychologists is explored. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy.

**PT 5430 Clinical Medicine II Cr. 1**

Disease processes, and medical and surgical interventions. Role of physical therapy as part of comprehensive multi-disciplinary health care team. Offered Spring/Summer.

**Prerequisite:** PT 5410

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy.

**PT 5500 Kinesiology and Biomechanics Cr. 3**

Normal movement and biomechanics applied to the human body. Offered Winter.

**Prerequisite:** PT 5505 and PT 5510 and PT 5400

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$20

**PT 5505 Clinical Applications of Human Anatomy Cr. 3**

Knowledge of basic human anatomy for students in health science professional programs; foundation for further study in clinical sciences. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Occupational Therapy or Physical Therapy.

**Equivalent:** OT 5505

**PT 5510 Clinical Applications of Human Anatomy: Laboratory Cr. 1**

Examination of prosections, dissection of human cadavers; didactic study. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$220

**Equivalent:** OT 5510

**PT 5650 Pathophysiology for Health Sciences Cr. 3**

Fundamental knowledge of the nature of disease for the health sciences student; physiologic and morphologic changes accompanying disease processes; mechanisms of repair and recovery. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Equivalent:** OT 5650, RT 5650

**PT 5660 Pathokinesiology Cr. 2**

A continuation of PT 5500 (Kinesiology and Biomechanics), this course is designed to teach: foundational principles regarding biomaterials, key biomechanical and kinesiological principles of human movement as related to anatomy and physiology, and application of this information to clinical situations that involve alterations in movement. Analyses of pathological motion and pathokinesiology of selected joints will be included. Offered Spring/Summer.

**Prerequisite:** PT 5500

**Corequisite:** PT 5670

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$10

**PT 5670 Special Test in Physical Therapy Cr. 1**

A continuation of PT 5300 (Basic Evaluation), this course is designed to teach Special Test as part of a physical therapy examination. Student will relate the special tests to appropriate pathologies, perform and interpret the results of special tests and discuss hypotheses in light of evidence-based knowledge. Offered Spring/Summer.

**Prerequisite:** PT 5300

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PT 5800 Clinical Education I Cr. 3**

First of a four-course clinical education series. Six weeks of full-time supervised clinical experience for physical therapy students. Offered Yearly.

**Fees:** \$20

**PT 5820 Clinical Education II Cr. 3**

Second of a four-course clinical education series. Six-week of full-time supervised clinical experience for physical therapy students. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Doctor of Physical Therapy program.

**Fees:** \$45

**PT 5990 Directed Study Cr. 1-4**

The remediation directed study has been designed to help students remediate for academic or clinical competency standards in the Physical Therapy program. The student will identify, based on performance areas of weakness on course content or clinical skills. Once identified a faculty mentor will assist the student in developing a plan to develop mastery of the content or clinical skills needed to be deemed competent in deficient areas and continue in the PT program. The remediation plan will then be implemented by the student. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Repeatable for 8 Credits**

**PT 6100 Therapeutic Exercise II Cr. 3**

Advanced application of principles and techniques of therapeutic exercise; evaluation and modification of therapeutic exercise plan of care, based on physical and functional responses and characteristics of patients or clients. Offered Fall.

**Prerequisite:** PT 5100

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$15

**PT 6300 Research I: Critical Thinking Cr. 2**

Introduction to evidence-based practice and clinical reasoning and decision making. Identification, location, critique and analysis of evidence. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the Doctor of Physical Therapy program.

**PT 6310 Advanced Exercise Physiology Cr. 2**

Metabolic, neuromuscular, cardiovascular, and respiratory adjustments to acute and chronic exercise in health and disease, including body composition and weight control, nutritional considerations, and the effects of different environments on exercise performance. Offered Fall.

**Equivalent:** KIN 6310, PSL 6010

**PT 6410 Special Topics in Physical Therapy I Cr. 2**

This course will cover the topics of teaching and learning, professionalism, cultural sensitivity and being successful as a physical therapy graduate student. Offered Spring/Summer.

**PT 6420 Special Topics in Physical Therapy II Cr. 2**

This course will cover the topics as related to the Physical Therapy including, Legal and Ethical Issues, Mental Health Considerations, and Complementary Therapies in Rehab. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy.

**PT 6430 Special Topics in Physical Therapy III Cr. 2**

This course will cover advance topics as related to the Physical Therapy including, Diversity and Implicit Bias, Oncology, and professional and individual aspects related to the transition from student to clinician. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy.



**PT 6500 Pharmacology Cr. 2**

Effects of drug distribution, absorption and excretion as pertaining to physical therapy. Major drug categories, OTC, and nutritional supplements, pertinent to acute and chronic responses to physical therapy; indications, mechanisms, effects. Offered Fall.

**Prerequisite:** PT 5430 and PT 5650

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PT 6700 Motor Learning and Motor Control Cr. 2-3**

Current theories and concepts in processes of motor skill acquisition and performance, from a behavioral objective. Additional evidence-based case reports required if elected for three credits. Offered Winter.

**Prerequisite:** PT 5400 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**PT 7000 Therapeutic Modalities Cr. 3**

Lecture and laboratory experiences focusing on principles and procedures for using physical agents and spinal traction. Tissue inflammation and repair, pain, superficial and deep heat, cryotherapy, electrotherapy, and spinal traction included. Integumentary evaluation and wound management. Offered Fall.

**Prerequisite:** PT 5430 and PT 5660

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$30

**PT 7100 Management of Patients with Orthopedic Conditions I Cr. 4**

Lecture and laboratory experience focusing on knowledge, principles, clinical reasoning and decision making skills, examination and evaluation procedures, and interventions required for managing patients with impairments, functional limitations, and disabilities due to musculoskeletal pathologies of the extremity joints across the life span, and the continued development of patient care skills. Offered Fall.

**Prerequisite:** PT 5300 with a minimum grade of C and PT 5320 with a minimum grade of C and PT 5500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**Fees:** \$25

**PT 7120 Management of Patients with Orthopedic Conditions II Cr. 3**

Lecture and laboratory experience focusing on knowledge, principles, clinical reasoning and decision making skills, examination and evaluation procedures, and interventions required for managing patients with impairments, functional limitations, and disabilities due to musculoskeletal pathologies of the spinal column and extremity joints across the life span, and the continued development of patient care skills. Offered Winter.

**Prerequisite:** PT 7100

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$25

**PT 7200 Management of Patients with Neurological Disorders I Cr. 3**

Basic principles and techniques of assessing problems associated with neurological disorders including postural tone, sensation, superficial and developmental reflexes, quality of movement, perceptual-motor skills and functional mobility. Offered Yearly.

**Prerequisite:** PT 5400 and PT 6700

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$114

**PT 7220 Management of Patients with Neurological Disorders II Cr. 3**

Theory, principles and application of the neurophysiological approach to evaluation and treatment. Proprioceptive neuromuscular facilitation, neuro development treatment, sensory integration, and sensory-motor approaches. Offered Winter.

**Prerequisite:** PT 7200

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$35

**PT 7300 Orthotics and Prosthetics Cr. 3**

Principles and techniques of prosthetic and orthotic function, component selection and application, use and training. Upper and lower extremity devices, and spinal devices, wheelchairs, ambulatory aids, assistive devices and environmental control systems. Advanced gait and movement biomechanics and evaluation. Offered Fall.

**Prerequisite:** PT 5500 and PT 5660 and PT 7200

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**Fees:** \$25

**PT 7320 Rehabilitation Procedures Cr. 3**

Theoretical issues and treatment of patients with spinal cord injury, traumatic brain injury, problems of aging, and chronic neuromuscular conditions. Offered Fall.

**Prerequisite:** PT 7200 and PT 7220

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**Fees:** \$20

**PT 7400 Cardiopulmonary Rehabilitation Cr. 4**

Physiology and pathophysiology of disorders of the cardiac and pulmonary systems. Evaluation and treatment of cardiopulmonary disorders. Offered Winter.

**Prerequisite:** PT 5100 and PT 5430 and PT 6310

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$20

**PT 7600 Physical Therapy for Medical and Surgical Conditions Cr. 3**

Management of patients with complex problems including medical and surgical conditions seen in acute care hospital settings. Offered Winter.

**Prerequisite:** PT 5650 and PT 5430

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**Fees:** \$25

**PT 7700 Research II: Design & Methodology Cr. 2**

Introduction to basic principles of research theory, design, and methodology for physical therapy. Biostatistics and analysis of scientific literature relevant to physical therapy. Offered Fall.

**Prerequisite:** PT 6300

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PT 7720 Research III: Data Analysis and Interpretation Cr. 2**

Basic principles of research design as it relates to the theory and practice of physical therapy. Students will analyze relevant scientific literature, design, develop and implement a research project, and learn basic computer skills in utilizing a statistical analysis program. Offered Fall.

**Prerequisite:** PT 7700 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**Fees:** \$20

**PT 7740 Research IV: Research Practicum Cr. 1**

Basic principles of research design as it relates to the theory and practice of physical therapy. Students will develop and implement a research project and present the results in several formats. Offered Fall.

**Prerequisites:** PT 6300, PT 7700, and PT 7720

**Restriction(s):** Enrollment is limited to Graduate level students.

**PT 7990 Directed Study Cr. 1-4**

Independent study: critical analysis or review of new or unique topics in health care; or physical therapy role, approach, methodology, techniques or scientific rationale for professional practice. Oral and written presentation required. Elective. Offered Yearly.

**Prerequisite:** PT 5100

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PT 8000 Therapeutic Management of Pediatric Populations Cr. 3**

Principles and application of the elements of physical therapy practice in the management of pediatric populations. Offered Fall.

**Prerequisite:** PT 5120 with a minimum grade of C and PT 6700 with a minimum grade of C and PT 7220 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**Fees:** \$15

**PT 8110 Geriatrics Cr. 2**

Theories and basic principles of physical, sensorimotor, perceptual, cognitive, social, emotional, and language changes during the aging process. Emphasis is placed on how the aging process impacts functional independence and contributions from all body systems. Implications for physical therapy evaluation and treatment for the aging population are examined. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**Fees:** \$50

**PT 8170 Professional Development and Reflective Practice Cr. 3**

Exploration of novice vs. expert practice in physical therapy; role of reflection in developing professional skills and behaviors. Current professional and legal issues in provision of physical therapy services. Web-based course. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Doctor of Physical Therapy program; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PT 8200 Management in Physical Therapy Practice Cr. 2**

Overview of health care systems; financing and administration of physical therapy services within various health care systems. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Doctor of Physical Therapy program; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PT 8300 Differential Diagnosis for Health Sciences Cr. 3**

Principles and procedures designed to facilitate the integration of previously-introduced examination and evaluation skills, in order to perform differential diagnosis for primary care practice. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Doctor of Physical Therapy program; enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PT 8400 Diagnostic Procedures for Health Sciences Cr. 2-3**

Medical diagnostic procedures and application of results as related to provision of physical therapy health services, including diagnostic imaging and laboratory tests. Additional project required if elected for three credits. Offered Every Term.

**Prerequisite:** PT 5650 with a minimum grade of C and PT 5430 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

**PT 8500 Clinical Decision Making Cr. 3**

Integration of didactic and clinical knowledge in development of diagnostic prognostic skills in physical therapy; focus on refining competencies in peer referral across health care disciplines; development of strategies for clinical decision making. Offered Yearly.

**Prerequisite:** PT 6100 with a minimum grade of C and PT 7120 with a minimum grade of C and PT 7220 with a minimum grade of C and PT 7400 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the Doctor of Physical Therapy program; enrollment is limited to Graduate level students.

**Fees:** \$95

**PT 8600 Health Promotion and Wellness Cr. 2**

Dimensions of health promotion and wellness, including implementation strategies for different populations. Analysis of physical, emotional and cost benefits. Identification of needs and development of practice plan for groups and individuals. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**PT 8800 Clinical Education III Cr. 4**

Third in a four-course clinical education series. Twelve weeks of full-time supervised terminal clinical experience for physical therapy students with emphasis on progression to entry-level clinician. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**Fees:** \$70

**Repeatable for 8 Credits**

**PT 8820 Clinical Education IV Cr. 8**

Fourth in a four-course clinical education series. Final full-time supervised terminal clinical experience for physical therapy students. Twelve week full time experience with emphasis on progression to entry-level clinician. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Physical Therapy; enrollment is limited to Graduate level students.

**Fees:** \$30

**PT 8850 Clinical Practicum Cr. 3**

Monitored clinical practice in a focused area of physical therapy practice. Focus may include: administration and management, cardiopulmonary, neurology, orthopedics, integumentary care, pediatrics, and teaching. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the Pharmacy and Health Sciences.

## PTH - Pathology

**PTH 7080 Special Topics in Pathology Cr. 1-15**

Frontier areas in experimental pathology and clinical laboratory sciences. Format may be lecture, laboratory, or discussion; topics to be announced in Schedule of Classes. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 20 Credits**

**PTH 7085 Critical Review of Scientific Publications Cr. 1**

For Ph.D. students in biomedical fields. Current experimental approaches in medical research. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Pathology; enrollment limited to students in the PhD in Medicine program; enrollment is limited to Graduate level students.

**Repeatable for 5 Credits**

**PTH 7090 Signal Transduction and Cell Growth Regulation Cr. 3**

Signal transduction pathways, both cellular and molecular, and their alterations in cancer. Journal articles and instructor handouts used; emphasis on relationship to disease process. Offered Every Other Winter.

**Prerequisites:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 7130 Neuropathology Cr. 2**

Offered Yearly.

**Prerequisites:** PTH 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 7150 Pathology of Respiratory Tract Cr. 2**

Offered Yearly.

**Prerequisites:** PTH 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 7180 Cardiovascular Pathology Cr. 2**

Gross, microscopic and submicroscopic anatomy and pathophysiology of cardiovascular disease, both human and experimental. Offered Yearly.

**Prerequisites:** PTH 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 7330 Pathology of the Kidney Cr. 2**

Techniques of preparing renal biopsies for light and electron microscopy and immunofluorescent studies; ultrastructure of normal kidney; physiology of kidney - acute and chronic renal failure; glomerular disease; pyelonephritis; vascular disease; and acute tubular necrosis and renal transplantation. Offered Yearly.

**Prerequisites:** PTH 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 7890 Seminar Cr. 1**

Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Pathology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**Repeatable for 25 Credits**

**PTH 8000 Current Topics in Tumor Metastasis Cr. 3**

Advances in research on key aspects of tumor metastasis; emphasis on molecular mechanisms, tumor invasion, angiogenesis, and organ-specific tumor metastasis. Offered Fall.

**Prerequisites:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 8010 Molecular Biology of Diabetes and Obesity Cr. 2**

Basic principles and current research topics in the etiology and pathology of diabetes; diabetic complications and obesity. Offered Every Other Fall.

**Prerequisites:** IBS 7015 with a minimum grade of C

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters or Doctoral Candidate; enrollment is limited to Graduate level students.

**PTH 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PTH 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Yearly.

**Prerequisite:** PTH 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Yearly.

**Prerequisite:** PTH 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Yearly.

**Prerequisite:** PTH 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PTH 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## PYC - Psychiatry

**PYC 6050 Biology of the Eye Cr. 3**

Introduction to biology of eye structure/function, and to causes and clinical treatments of eye-related disorders and diseases. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**Equivalent:** ANA 6050, BIO 6055

**PYC 7010 Molecular Neuropsychopharmacology Cr. 3**

First part of a two-semester in-depth study of nerve cells, their organization into functional circuits and their mediation of normal and aberrant behaviors. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PYC 7140 Fundamentals of Neuroimaging Cr. 3**

Overview of methods: PET, EEG/ERP/TMS, fundamentals of MR, structural MRI, functional MR, MR spectroscopy and DTI. Review of the application of these methods in studying disorders of the nervous system. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PYC 7150 Fundamentals of Neuropsychiatric Disorders Cr. 3**

Overview of pathophysiology, clinical manifestations, and treatment of major neuropsychiatric disorders. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Medicine.

**PYC 7320 MR Imaging of Neurovascular Disease Cr. 3**

Recent advances in MRI technology applied to human brain vascular diseases. Methods include: 3D anatomical imaging, diffusion tensor imaging, functional brain imaging, perfusion imaging, and susceptibility weighted imaging. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** BME 7720

**PYC 7500 Advanced Topics in Neuroscience Cr. 1-6**

Topics offered each semester in one-credit modules, relevant to ongoing research in the degree program. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**PYC 7515 Advanced Topics: Imaging, Neurodevelopment and Psychiatric Disorders Cr. 3**

Advanced introduction to imaging neurodevelopment based on anatomical, biochemical and functional studies; focus on abnormal development of psychiatric disorders. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**PYC 7595 The Gut Microbiome and Translational Neuroscience Cr. 3**

This combined lecture and discussion course will introduce graduate students with interests in translational neurosciences to the emerging field of the gut microbiome. Lectures will cover basics of the gut microbiome to include bacterial taxonomy, samples used to study the gut microbiome, DNA isolation, library construction and quality control and 16S rRNA sequencing on a MiSeq next generation sequencer. Additional lectures will include descriptions of sequence data download and analysis, bioinformatics, multivariate statistics, and graphical display of data. The latest published literature on the gut-brain axis will also be used for purposes of discussion and to give students an appreciation for how the gut microbial community can influence the brain and its function. Particular emphasis will be placed on how a dysbiosis in the gut microbiome can influence psychiatric diseases, substance abuse disorders and other physiological functions attributed entirely to the brain heretofore. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PYC 7890 Research Seminar Cr. 1**

Presentations by clinical and basic research staff and by the program's graduate students. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**PYC 7990 Directed Study Cr. 1-6**

Independent study under the guidance of an advisor, including complete review of a problem area immediately relevant to basic or clinical neuroscience. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 10 Credits**

**PYC 7996 Research Problems Cr. 3**

Directed laboratory rotation for graduate students in the translational neuroscience program. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**PYC 7998 Clinical Neuroscience Rotation Cr. 3,6**

Neuroscience trainees become familiar with clinical issues in their chosen area of study; transfer of basic science knowledge to clinical application. Offered Every Term.

**Prerequisites:** PYC 7150 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**PYC 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**PYC 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**PYC 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PYC 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PYC 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PYC 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PYC 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** PYC 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**PYC 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## RDT - Radiologic Technology

**RDT 3090 Directed Study Cr. 1**

Independent study of medical terminology and related vocabulary. Instructor-directed online course. Offered Fall.

**Prerequisite:** RDT 3100 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**RDT 3100 Introduction to Radiologic Technology Cr. 2**

Introduction to radiology and hospital procedures. Role of radiographer as a member of the health care team. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$50

**RDT 3200 Radiation Biology and Advanced Protection Cr. 3**

Radiation protection procedures; radiation interaction with matter and dosage problem solving. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**RDT 3300 Radiographic Procedures I Cr. 3**

Instruction and practical experience in procedures of positioning for the skeletal system with correlation to related anatomy in medical images. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**RDT 3400 Clinical Education I Cr. 6**

Clinical course. Student participates in supervised practice of radiographic procedures, studied in conjunction with didactic coursework. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$55

**RDT 3500 Patient Care Cr. 3**

Practical application of patient handling: patient assessment, implication of medications and contrast media. BLS certification. Offered Winter.

**Prerequisite:** RDT 3090 with a minimum grade of C and RDT 3100 with a minimum grade of C and RDT 6500 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$35



**RDT 3600 Clinical Education II Cr. 6**

Application of didactic theory in practice on patients/clients under supervision of qualified technologists in a clinical setting. Offered Fall.

**Prerequisite:** RDT 3400 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$50

**RDT 3700 Radiographic Procedures II Cr. 3**

Continuation of RDT 3300. Additional advanced procedures, including skull, mammography, and gastrointestinal studies. Offered Winter.

**Prerequisite:** RDT 3300 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$35

**RDT 3800 Cross-Sectional Anatomy Cr. 3**

Presentation of anatomical structures in sectional format, as encountered in computed tomography or magnetic resonance imaging. Offered Spring/Summer.

**Prerequisite:** RDT 3300 with a minimum grade of C and RDT 3700 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**RDT 3900 Clinical Education III Cr. 6**

Minimally supervised clinical experience. Skills practice to proficiency level; additional complex skills. Offered Winter.

**Prerequisite:** RDT 3600 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$50

**RDT 4100 Radiographic Quality/Exposure Cr. 3**

Practical application of technical exposure factor formulation; imaging systems and subsequent effects of equipment manipulation of images. Offered Fall.

**Prerequisite:** RDT 3200 with a minimum grade of C and RDT 3300 with a minimum grade of C and RDT 3700 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$35

**RDT 4200 Radiation Physics and Circuitry Cr. 3**

Radiation physics; tubes and circuits of radiographic equipment. Offered Fall.

**Prerequisite:** RDT 3200 with a minimum grade of C and RDT 3500 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**RDT 4300 Clinical Education IV Cr. 6**

Continuation of RDT 3900. Offered Spring/Summer.

**Prerequisite:** RDT 3900 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$50

**RDT 4400 Radiographic Pathology Cr. 3**

Disease process and how they manifest in imaging modalities. Clarification of modality preference. Offered Winter.

**Prerequisite:** RDT 3500 with a minimum grade of C and RDT 4500 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**RDT 4500 Clinical Education V Cr. 6**

Supervised clinical experience in performing radiographic procedures on patients in clinical setting. Evaluation of outcomes; application of knowledge at a progressive level. Offered Fall.

**Prerequisite:** RDT 4300 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$75

**RDT 4600 Radiology Seminar Cr. 1**

Introduction to imaging modalities beyond the scope and practice of the general radiographer; emphasis on interventional procedures. Offered Winter.

**Prerequisite:** RDT 3500 with a minimum grade of C and RDT 3700 with a minimum grade of C and RDT 4100 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$20

**RDT 4700 Clinical Education VI Cr. 6**

Continuation of RDT 4500. Offered Winter.

**Prerequisite:** RDT 4500 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**Fees:** \$50

**RDT 4800 Independent Study Cr. 1**

**Satisfies General Education Requirement:** Writing Intensive Competency Independent research in radiology. Offered Fall.

**Prerequisite:** RDT 3090 with a minimum grade of C and RDT 3500 with a minimum grade of C and RDT 3700 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**RDT 4900 Jurisprudence for Radiographers Cr. 3**

Ethical and legal case studies; research and discussion correlated to philosophical theory and accepted best law practice for general situations in health care and those specific to radiography. Offered Winter.

**Prerequisite:** PHI 2320 with a minimum grade of C and RDT 3500 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

**RDT 6500 Pharmacology Cr. 2**

Effects of drug distribution, absorption and excretion as pertaining to physical therapy. Major drug categories, OTC, and nutritional supplements, pertinent to acute and chronic responses to physical therapy; indications, mechanisms, effects. Offered Fall.

**Prerequisite:** RDT 3100 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiologic Technology program.

## RLL - Reading, Language and Literature Education

**RLL 6121 Teaching Reading in the Content Areas: Grades 6-12 Cr. 3**

Teaching reading across all content areas with particular attention to readers with special needs. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**RLL 6700 Second Language Literacy Development: K-12 Cr. 3**

Examination of theories, organizations and instructional strategies involved in second language literacy development, and their applications in the classroom. Offered Fall, Spring/Summer.

**RLL 6801 Assessment and Differentiated Instruction for Diverse Learners: Pre-K-8 Cr. 3**

Assessment of literacy competencies of diverse learners; use of assessments to plan and implement differentiated instruction in grades PreK-8. Implementation with students in field component; and evaluation. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**RLL 6802 Assessment and Differentiated Instruction for Diverse Learners: 6-12 Cr. 3**

Assessment of literacy competencies of diverse learners; use of assessments to plan and implement differentiated instruction in grades 6-12. Implementation with students in field component; and evaluation. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**RLL 7100 Emergent Literacy Cr. 3**

Variety of theories, organization and instructional strategies involved in the beginning stages of literacy; their application to the classroom. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 7200 Comprehension Cr. 3**

Models of comprehension, factors that affect comprehension, instructional methods, reading/writing connection, evaluation (pre-K to adult). Offered Yearly.

**Prerequisites:** RLL 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 7300 Literacy Across the Curriculum Cr. 3**

Theoretical bases for teaching literacy across the curriculum; strategies for organization and instruction. Action research as a tool for learning. Offered Yearly.

**Prerequisites:** RLL 7100 with a minimum grade of C and RLL 7200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 7350 Literacy Coaching for the Classroom, School, and Community Cr. 3**

Prepares educators to become literacy coaches who work with teachers, administrators, and community partners. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 7400 Practicum and Seminar in Evaluation and Instruction Cr. 3**

Evaluation and literacy competencies of learners, methods of instruction, use of portfolios and reports to document progress; applied during supervised tutoring. Offered Yearly.

**Prerequisites:** RLL 7100 with a minimum grade of C and RLL 7200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**RLL 7500 Theoretical Foundations for Literacy Cr. 3**

Implications of theories from sociology, psychology, linguistics, semiotics and related fields, for the development of literacy. Offered Yearly.

**Prerequisites:** RLL 7100 with a minimum grade of C and RLL 7200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 7600 Current Developments in Literacy Education Cr. 1-6**

Topics of current interest; review of literature, discussion of educational implications. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**RLL 7720 Survey and Analysis of Current Literature for Children: PS-Grade 3 Cr. 3**

Intensive examination of books appropriate for preprimary and primary school children. Analysis of the literary and extra-literary factors that affect the young child's experiences with fiction, nonfiction, and poetry. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 7740 Survey and Analysis of Literature for Older Children: Grades 4-8 Cr. 3**

Intensive examination of books appropriate for children in grades four through eight. Analysis of literary and extra-literary factors affecting the older child's experiences with fiction, nonfiction, and poetry. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** INF 6520

**RLL 7750 Reading the Word and World through Children's Literature Cr. 3**

In this course we will critically examine current children's & adolescent literature through a critical lens by reading and discussing a plethora of literature. The genres, authors, illustrators, formats, and representations of books appropriate for children in grades PK-8; and the engagements that bring children and books together, will be explored through professional readings, discussions, and class experiences. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** RLL 7720, RLL 7740

**RLL 7770 Literacy Assessment Cr. 3**

Focuses on diagnosis of children's literacy skills. Students will examine standardized large-scale assessment results to determine areas in need of further diagnostic assessment. Students will administer, interpret, and score formal and informal literacy assessments, write case reports, and analyze literacy processes to monitor student progress. The course content meets the Michigan State school code PA 118 and has been approved by the Michigan Department of Education. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 7790 Literacy Instructional Design Cr. 3**

Focuses on assessment-driven and research-based literacy instructional design. Students will match research supported instructional practices and materials to support student strengths and needs identified through assessment. Students will also implement and assess the effectiveness of the instruction and plan for future instruction. Offered Winter.

**Prerequisite:** RLL 7770 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 8600 Internship in Research and Teaching Cr. 3-6**

Experiences in college-level teaching and/or research through internships teaching college courses and/or collaborative research with experienced faculty. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**RLL 8700 Research Applications in Literacy Cr. 3**

Research designs, analysis strategies, relevant statistics useful in conducting a wide variety of contemporary literacy-related research. Offered Yearly.

**Prerequisite:** EER 7630 with a minimum grade of C and EER 7640 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 8800 Seminar in Theory and Research in Literacy I: Foundational Theory and Research Cr. 3**

Foundational theories and research in literacy and related fields such as psychology, sociology, literary criticism, linguistics, and semiotics that have shaped literacy theory, research, and instruction. Includes behavioral, cognitive/metacognitive, critical and constructivist theories and research. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 8810 Seminar in Theory and Research in Literacy II: Diversity, Contexts, and Communities Cr. 3**

Examines issues of language, literacy, and culture in reading and literacy learning from preschool through adolescence with particular focus on diverse learners and linguistic diversity. Topics include emergent literacy, adolescence and youth culture, oral and written language, and the role of language in the home and community. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**RLL 8840 Practicum in Supervision and Administration of Programs in Literacy Development Cr. 3**

Understanding the supervision and administration of literacy programs through investigation, experience supervising a literacy center in conjunction with faculty, and working with master's-level students who are tutors in that program. Offered Every Term.

**Prerequisite:** RLL 7400 with a minimum grade of C or RDG 7400 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

## ROC - Radiation Oncology

**ROC 5010 Introduction to Radiological Physics Cr. 4**

Nature of radiation and its interaction with matter. Theory of dosimetry and instrumentation for detection of radiation. Principles of radiation protection. Applications of radiation in radiology and related problems. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 5990 Directed Study in Medical Sciences Cr. 1-4**

Introduction to modern methodology of cancer research. Students of the Division of Cancer Biology of the Department of Radiation Oncology conduct research projects under direction of research scientists. Areas of research include: molecular biology, enzyme purification, tumor biology, cellular biochemistry. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 6710 Physics in Medicine Cr. 3**

Applications of physics in medicine including radioactivity; interaction of radiation in matter; x-ray, CT, MRI, ultrasound, and PET imaging; nuclear medicine; radiation oncology. Offered Winter.

**ROC 7000 Imaging Physics I Cr. 4**

Basic theory of medical imaging. Introduction to magnetic resonance imaging and spectroscopy, ultrasound; diagnostic radiology: radiography, fluoroscopy, CT, digital radiography, and mammography. Offered Fall.

**Prerequisites:** ROC 5010 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7010 Imaging Physics II: Nuclear Medicine Cr. 2**

Physics of nuclear medicine, with emphasis on imaging. Offered Winter.

**Prerequisite:** ROC 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7020 Physics of Radiation Therapy Cr. 3**

Lecture and demonstration in physics of radiation therapy. Offered Winter.

**Prerequisite:** ROC 5010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7040 Radiation Dosimetry Cr. 2**

Lecture and demonstration on principles of radiation dosimetry.

Dosimetry of photons, electrons, neutrons and dose from radioactive materials. Offered Winter.

**Prerequisite:** ROC 5010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7060 Applied Radiobiology in Radiological Science Cr. 2**

Fractionation, oxygen enhancement ratio, characterization of neutron beams and heavy particles for radiation therapy, radiosensitivity within cell division. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7070 Radiation Safety Cr. 2**

Lectures on radiation safety procedures and practices; governmental regulations on radiation safety. Offered Spring/Summer.

**Prerequisite:** ROC 5010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7080 Radiotherapy Physics Laboratory Cr. 2**

Practical laboratory exercises in ionometric and solid-state dosimetry techniques, quality assurance procedures for selected radiation therapy and diagnostic radiological equipment. Offered Spring/Summer.

**Prerequisite:** ROC 7020 with a minimum grade of C and ROC 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7110 Treatment Planning Cr. 2**

Practical aspects of radiotherapy treatment planning. Lectures and exercises in patient data acquisition and computerized treatment planning for a variety of sites with both teletherapy and brachytherapy. Offered Fall.

**Prerequisite:** ROC 7020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7120 Radionuclide Therapy Cr. 2**

Development of radionuclide technology and its medical use from its discovery to the latest developments. Offered Fall.

**Prerequisite:** ROC 5010 with a minimum grade of C and ROC 7020 with a minimum grade of C and ROC 7040 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7130 Nuclear Medicine Physics Laboratory Cr. 2**

Laboratory experiments calibration, Q.A., etc., on isotope generators, isotope calibrators, counting systems, spectrometers, cameras, spect and PET systems, Counting statistics, spectrum analysis. Offered Spring/Summer.

**Prerequisite:** ROC 7010 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7150 Radiation Oncology Anatomy and Physiology Cr. 2**

Independent study course covering radiological (CT/MRI) anatomy and basic anatomy and medical terminology pertinent to radiation oncology. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7160 Advanced Topics in Medical Physics Cr. 2**

Advanced imaging principles for students pursuing careers in medical physics or any other profession related to diagnostic imaging. Offered Winter.

**Prerequisite:** ROC 5010 with a minimum grade of C and ROC 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7170 Professional Aspects of Medical Physics Cr. 2**

Provide an overview of the professional aspects of clinical radiation oncology physics. Involvement in practical aspects of clinical radiation oncology physics including analysis of quality assurance and practice quality improvement initiatives, review of regulatory and external certification requirements, etc. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7890 Seminar Cr. 1**

Presentations by graduate students, staff, visitors with emphasis on topics relevant to radiation biophysics and radiological health. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 7990 Directed Study Cr. 1-5**

Independent study in the uses of new technologies in clinical radiology. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 5 Credits**

**ROC 7999 Essay Direction Cr. 3**

Preparation of an in-depth paper on a subject in radiological physics. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Medical Physics or Radiological Physics; enrollment is limited to Graduate level students.

**ROC 8990 Special Problems in Radiation Biophysics Cr. 1-7**

Independent study in advanced topics to be selected by the student in consultation with instructor. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Medical Physics or Radiological Physics; enrollment is limited to Graduate level students.

**Repeatable for 7 Credits**

**ROC 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**ROC 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ROC 9991

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ROC 9992

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** ROC 9993

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Prerequisite:** ROC 9994

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**ROC 9996 Radiation Oncology Physics Clinical Rotation I Cr. 7.5**

Prereq: DMP candidate in department and written consent of the program director. Required in Fall term of Year 3 of Professional Doctorate program. Offered for S and U grades only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 9997 Radiation Oncology Physics Clinical Rotation II Cr. 7.5**

Prereq: Satisfactory completion of ROC 9996 and written consent of the program director. Required in Winter term of Year 3 of Professional Doctorate program. Offered for S and U grades only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 9998 Radiation Oncology Physics Clinical Rotation III Cr. 7.5**

Prereq: Satisfactory completion of ROC 9997 and written consent of the program director. Required in Fall term of Year 4 of Professional Doctorate program. Offered for S and U grades only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**ROC 9999 Radiation Oncology Physics Clinical Rotation IV Cr. 7.5**

Prereq: Satisfactory completion of ROC 9998 and written consent of the program director. Required in Winter term of Year 4 of Professional Doctorate program. Offered for S and U grades only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## RSE - Research, Service and Engagement

**RSE 1000 Engaged Learning for the 21st Century Cr. 1**

This course-based learning community offers students a chance to refamiliarize themselves with their academic goals and career aspirations, engage with campus communities, and collaborate with other students and faculty for 21st century learning. Students will develop three key skills: critical thinking, communication, and collaboration. Offered Fall, Winter.

**RSE 1010 Building a Foundation for College Success Cr. 1**

**Satisfies General Education Requirement:** Wayne Experience

This course is designed to expose students to the Wayne State University undergraduate experience. Students will gain an understanding of campus resources, institutional values, and the merits of a liberal arts education from an urban research one university. This course will aid in the development of critical and analytical thinking skills necessary for college success while determining one's academic and professional goals. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students with a class of Freshman.

**Equivalent:** BE 1060, FPC 1020

**RSE 2010 STEM Learning Assistant Pedagogy Cr. 2**

This course is for students who have been selected to work as learning assistants in STEM courses. This course is a service-learning experience that will allow students to learn about evidence-based pedagogical strategies that support learning in STEM disciplines, and apply these strategies as learning assistants. Students must be selected as a learning assistant before enrolling in this course. To be selected as a learning assistant students must have earned a B+ or better in the course to be served, or have a B+ in an equivalent course. A minimum GPA of 3.5 is preferred, but students with GPAs between 3.0 and 3.5 may be accepted at the discretion of the instructor and faculty mentor. Strong interpersonal skills are required. An interest in creating an inclusive community where all students belong is required. Offered Fall, Winter.



**RSE 2030 STEM Learning Assistant Advanced Pedagogy Cr. 2**

This course is for students who have completed at least one semester as a learning assistant in a STEM course, and are now selecting to complete a second semester as a learning assistant. This course is a service-learning experience that allows students to apply evidence-based pedagogical strategies that support learning in STEM disciplines. Students in this advanced pedagogy course will extend their learning by completing a project on pedagogy, such as a new learning activity or assessment. To be selected as a learning assistant students must have earned a B+ or better in the course to be served, or have a B+ in an equivalent course. A minimum GPA of 3.5 is preferred, but students with GPAs between 3.0 and 3.5 may be accepted at the discretion of the instructor and faculty mentor. Strong interpersonal skills are required. An interest in creating an inclusive community where all students belong is required. Offered Fall, Winter.

**RSE 3000 Research, Service and Engagement in Liberal Arts and Sciences Cr. 1-4**

Allows undergraduate students to pursue mentored research, service and engagement experiences in Liberal Arts and Sciences. Offered Every Term.

**Repeatable for 4 Credits**

**RSE 4100 From CLAS to Career Cr. 1**

This course is specifically designed for students who are seeking professional full-time employment for at least 5 years upon graduation. Topics include: identifying your strengths and skills as a Liberal Arts and Sciences major; cover letters, résumés and LinkedIn profiles; electronic job searching, networking (both in person and online); interviewing; and professional etiquette and behavior. Offered Winter.

**RSE 5000 Research, Service and Engagement in Liberal Arts and Sciences Cr. 1-4**

Allows undergraduate students to pursue mentored research, service and engagement experiences in Liberal Arts and Sciences. Offered Every Term.

**Repeatable for 4 Credits**

## RT - Radiation Therapy Technology

**RT 3000 Concepts of Clinical Care Cr. 3**

Procedures and ethics related to the care and examination of the radiation oncology patient. Topics include: basic pharmacology, drug administration, pain management, treatment side effects and their management. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$25

**RT 3010 Introductory Radiation Physics Cr. 3**

Basic introduction of radiation physics including the x-ray machine, physical principles and circuitry; principles of mathematics. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**RT 3020 Clinical Radiation Physics Cr. 3**

Principles of radiation exposure; radiation producing and measuring devices; clinical application of radiation physics. Offered Winter.

**Prerequisite:** RT 3010 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**RT 3110 Clinical Aspects of Radiation Therapy Cr. 3**

Basic concepts in oncology and radiation therapy technology. Topics include: cancer statistics, neoplasia, and principles of treatment and dosage. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$75

**RT 3140 Topographic Anatomy and Medical Imaging Cr. 3**

Procedures for imaging human structure and their relevance to radiation therapy; topographic and cross sectional anatomy, identification of anatomic structures as demonstrated through various imaging modalities and human anatomy lab sessions; fundamentals of radiographic exposure techniques and film processing. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$10

**RT 3200 Therapeutic Interactions in Oncology Care Cr. 2**

Issues related to professional interaction with oncology patients. Impact of cancer diagnosis on patient and family; subsequent role of radiation therapist. Approaches to effective communication. Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$5

**RT 3310 Clinical Practicum I Cr. 4**

Introduction to clinical radiation therapy. Closely supervised patient-related activities. Emphasis on development of interpersonal communication skills in the clinical setting; medical terminology. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$79

**RT 3320 Clinical Practicum II Cr. 4**

Closely supervised practice in the delivery of prescribed doses of radiation utilizing common radiation equipment. Observation and performance of clinical care procedures; Development of communication skills in patient/therapist relationships. Correlation of medical imaging techniques to diagnostic workup and treatment planning. Completion of clinical competency requirements. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$79

**RT 3330 Clinical Practicum III Cr. 4**

Expanded supervised practice in the delivery of radiation therapy treatments. Submission of essay on radiation oncology topic. Completion of clinical competency requirements. Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$132

**RT 4110 Clinical Radiation Oncology Cr. 4**

General presentation of malignant conditions, their etiology and methods of treatment; specific radiation treatment methodology including technical parameters of field size and direction, dosage, blocking, and patient positioning. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$15

**RT 4120 Basic Clinical Dosimetry Cr. 4**

Basic concepts of clinical dosimetry and treatment planning; various external beam techniques, depth dose data, and summation of isodose curves. Offered Winter.

**Prerequisite:** RT 4110

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$10

**RT 4140 Oncologic Pathology Cr. 2**

Basic principles of neoplasia, including types of growth, causative factors, biological behavior, and significance of staging procedures. Pathology of radiation injury. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$10

**RT 4150 Radiobiology of Radiation Oncology Cr. 2**

Biological effects of ionizing radiation on living tissue. Cell and tissue radiosensitivity; radiation syndromes and related effects. Basic radiobiological principles of radiation oncology and radiation protection. Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**RT 4220 Radionuclide Physics Cr. 3**

Natural radioactivity; isotopes and nuclear structure; techniques of radiation measurement. The clinical use of radionuclides. Radiation safety. Offered Fall.

**Prerequisite:** RT 3020 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**RT 4240 Radiation Therapy Technology Seminar Cr. 3**

Issues relevant to the practice and profession of radiation therapy technology explored through group discussion and case studies. Topics include: psychosocial, cultural, economic, physical, and educational factors which affect the patient; professional, administrative, legal, and bioethical issues which influence professional practice. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$15

**RT 4300 Quality Assurance Cr. 2**

Principles and application of a comprehensive quality assurance program, addressing general clinical and physics factors. Contents include: tasks to be performed, with their frequency and acceptable limits; model implementation program; and legal implications. Lecture and laboratory settings. Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$10

**RT 4350 Clinical Practicum IV Cr. 4**

Continued supervised practice in a wide spectrum of clinical activities. Submission of a critical bibliography from current literature of radiation therapy, cancer management and related areas. Completion of clinical competency requirements. Offered Spring/Summer.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$126

**RT 4360 Clinical Practicum V Cr. 4**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Continued clinical practice under limited supervision. Submission of essay on radiation oncology topic. Completion of clinical competency requirements. Satisfies the University General Education Writing Intensive Course in the Major requirement. Offered Fall.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$67

**RT 4370 Clinical Practicum VI Cr. 4**

Continued clinical practice under minimal supervision. Practice of procedures related to the development of various treatment plans and methods of treatment planning. Submission of report on quality assurance activities. Completion of clinical competency requirements. Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Fees:** \$69

**RT 5650 Pathophysiology for Health Sciences Cr. 3**

Fundamental knowledge of the nature of disease for the health sciences student; physiologic and morphologic changes accompanying disease processes; mechanisms of repair and recovery. Offered Winter.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Equivalent:** OT 5650, PT 5650

**RT 5990 Directed Study in Radiation Therapy Technology Cr. 1-5**

Production of a paper, written assignment, or presentation to develop critical thinking, research, writing and presentation skills. Focus on career options within the field. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the BS in Radiation Therapy Tech program.

**Repeatable for 5 Credits**

## RUS - Russian

**RUS 1010 Elementary Russian I Cr. 4**

Development of practical skills in speaking, understanding, reading, and writing contemporary Russian. Offered Fall.

**Fees:** \$5

**RUS 1020 Elementary Russian II Cr. 4**

Continuing development of the four skills in contemporary Russian. Offered Winter.

**Prerequisites:** RUS 1010 with a minimum grade of D-

**Fees:** \$5

**RUS 2010 Intermediate Russian I Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Continuation of RUS 1020 with emphasis on developing speaking and reading skills. Offered Fall.

**Prerequisites:** RUS 1020 with a minimum grade of D-

**Fees:** \$5

**RUS 2020 Intermediate Russian II Cr. 4**

Objectives begun in RUS 2010; at more advanced level. Offered Winter.

**Prerequisites:** RUS 2010 with a minimum grade of D-

**Fees:** \$5

**RUS 2030 Russian Conversation Cr. 1**

Development of Russian oral language skills through intensive speaking and listening practice. Offered Fall, Winter.

**Prerequisites:** RUS 2020 with a minimum grade of D-

**RUS 2710 Introduction to Russian Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Foreign Culture, Global Learning Inquiry  
Survey of Russian culture from the tenth century to the present day. Introduction to Russian history, art, architecture, literature, music, religious practices, intellectual thought, and cuisine, as well as various aspects of daily life from the Tsarist period to the present day. Offered Every Term.

**RUS 2991 Understanding the Fairy Tale Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Introduction to the interdisciplinary context of major Russian fairy tales, exploring the different types of traditional Russian fairy tales, as outlined by Vladimir Propp, as well as the evolution of these fairy tales, emphasizing their transformation from oral and literary form into film, animation, opera, ballet, art, sculpture, and music. The course will also examine contemporary literary texts based on fairy tale motifs. All lectures and reading in English. Offered Fall, Winter.

**RUS 3010 Intermediate-Advanced Russian I Cr. 4**

Further development of skills; taught in two tracks at fifth and seventh semester levels. Offered Fall.

**Prerequisites:** RUS 2020 with a minimum grade of D-  
**Repeatable for 8 Credits**

**RUS 3020 Intermediate-Advanced Russian II Cr. 4**

Further development of skills; taught in two tracks at sixth and eighth semester levels. Offered Winter.

**Prerequisites:** RUS 2020 with a minimum grade of D-  
**Repeatable for 8 Credits**

**RUS 3050 Russian Practicum Cr. 3**

Internship with local Russian businesses and non-profit organizations to enable students to use Russian in real-life settings and learn about Russian culture first-hand. Offered Fall, Winter.

**Prerequisites:** RUS 3010 with a minimum grade of D-  
**Repeatable for 9 Credits**

**RUS 3070 Russian Listening Comprehension II Cr. 2**

Online course. Students view Russian videos and listen to audiotexts of fables and poetry, do exercises designed to develop their listening comprehension and expand their Russian vocabulary, and take quizzes and exams online. Offered Fall, Winter.

**Prerequisites:** RUS 3010 with a minimum grade of D-  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**RUS 3111 Digital Storytelling and Ethnic Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Students will learn about the ethnic, racial, and cultural history of Detroit and how to document elements of that history. This course introduces students to both theoretical and practical concepts around digital storytelling, drawing on extensive theoretical scholarship about placemaking, experiencing place, and the social production of heritage that spans the disciplines of anthropology, historical archaeology, heritage studies, historic preservation, media studies, and mobilities. Students will learn the practical steps involved in creating digital stories and will be introduced to best practices in multimedia development as discussed in the literature in the field of instructional technology. They will also explore the cultural, ethical and technological considerations involved in creating and disseminating digital stories. They will then create their own short digital story, which they will be able to share with the website Ethnic Layers of Detroit. Offered Yearly.

**Equivalent:** ANT 3111, GLS 3111, POL 3111

**RUS 3410 New Soil, Old Roots: The Immigrant Experience Cr. 3**

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry  
Armenian, German, Jewish, Polish, Russian and Ukrainian immigration to the United States, its effects on the cultures (language, literature, religion, politics, music, art and theatre) of these ethnic groups and its influence upon American culture. Offered Fall.

**Equivalent:** ARM 3410, GER 3410, POL 3410, SLA 3410

**RUS 3600 Nineteenth Century Russian Literature Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Major Russian writers, including Pushkin, Dostoevsky, Tolstoy, Chekhov, and others. How literature reflects and grows out of history; how culture is affected by writers and poets. Taught in English; readings in English. Offered Fall.

**RUS 3650 Russian Literature Since 1900 Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Twentieth century Russian literature as it explores the universal questions of love, death, rebirth, spirituality, and despair against a background of war, revolution, political oppression and economic collapse. Close analysis of major works of prose and poetry as well as literary currents such as Russian modernism, Socialist Realism, and post-modernism. Taught in English; readings in English. Offered Every Other Year.

**RUS 3810 Topics in Slavic Studies Cr. 3**

Special topics relating to Slavic languages, literatures and cultures, such as drama, the Gulag, and contemporary culture. Offered Yearly.

**Equivalent:** POL 3800, SLA 3800

**Repeatable for 9 Credits**

**RUS 3990 Directed Study Cr. 1-3**

For students desiring additional work in the language at the intermediate level; for programs of work not included in scheduled courses, either in language or literature. Offered Every Term.

**Prerequisites:** RUS 2010 with a minimum grade of D-  
**Repeatable for 6 Credits**

**RUS 5600 Nineteenth Century Russian Literature Cr. 3-4**

For advanced undergraduate and graduate students interested in Russian literature. Major nineteenth-century authors: Pushkin, Dostoevsky, Tolstoy, Chekhov, and others. Close readings of works introduce traditions and thematic concerns within historical and socio-cultural contexts; relevant intellectual, religious, political factors. Taught in English; readings in English. Offered Fall.

**RUS 5990 Directed Study Cr. 1-3**

For students who wish credit for program of work not included in regularly scheduled courses, either in language or in literature. Knowledge of Russian required. Offered Every Term.

**Repeatable for 12 Credits**

**RUS 5993 Writing Intensive Course in Russian Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency  
Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a course designated as a corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Fall, Winter.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

**RUS 5999 Internship in Russian Studies Cr. 3**

Internship in a public or private organization related to Russian studies. Offered for undergraduate credit only. Offered Every Term.

**Prerequisite:** RUS 3010 with a minimum grade of C- or RUS 3020 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Slavic Studies or Slavic Studies Honors.

## SAM - Sport Administration and Management

**SAM 2020 History of Sport Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry

Examines the historical evolution of sport, from ancient to modern times in the United States and throughout the world. Offered Winter.

**SAM 2100 Foundations of Sport Management Cr. 3**

By combining theory and practical application, this course provides an overview of various facets of sports management and administration, including issues related to the recreational, amateur, interscholastic, collegiate, professional and lifestyle sports industries. Offered Fall.

**SAM 3010 Ethics in Sport Cr. 3**

Examines principles of ethics, and their application to sport, physical education, and sport. Students will acquire an awareness of ethical conduct and cultivate an effective, deliberative process for dealing with ethical issues in sport. Offered Winter.

**SAM 3020 Sociology of Sport Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

Examines the ways in which sports are entangled in social, cultural, political, and economic forces. Students will systematically investigate the complex connections among sports, society, and cultures. Offered Fall, Winter.

**SAM 3030 Sports Promotion Cr. 3**

This course explores foundational principles of promotions, marketing, and public relations in the sports and active lifestyle industries, including sports sponsorship and promotion, corporate motivation and involvement, and the reciprocal relationship between sports and the media. Demographics, market research, public relations, and promotional activity will be examined through an integrated approach to marketing. Offered Fall, Winter.

**SAM 4020 Sport Governance Cr. 3**

Covers governance structures and policy issues in sport and how policy development and strategic planning activities affect sport organizations, both amateur and professional. Offered Fall.

**Prerequisite:** SAM 2100

**SAM 4030 Sport Finance Cr. 3**

Introduces students to the concepts of financial management and sales as applied to the sports industry. Offered Winter.

**Prerequisite:** SAM 2100

**SAM 4040 Sport Communication Cr. 3**

General principles and strategies of sport communication are covered, including public relations, media relations, and publicity in a variety of settings. Effective use of technology in sport communication will be particularly emphasized. Offered Winter.

**Prerequisite:** SAM 2100

**SAM 5000 Professional Practicum Cr. 3**

Students will be introduced to various areas within the sports industry through guided fieldwork and service learning experiences. Students will analyze career placement opportunities, the internship process, and associate requirements while preparing professional materials for use in the sports industry. Offered Fall.

**Prerequisite:** SAM 2100

**SAM 5510 Principles of Coaching Cr. 3**

Specific topics on the coach and the athlete in areas of administration, motor learning, physical growth, motor skill acquisition, philosophy, psychology and sociology. Offered Spring/Summer.

**SAM 5700 Sport Leadership Cr. 3**

Combines theory and practical application to provide an introduction to the various segments of the sports industry, including youth, interscholastic, collegiate, professional, and commercial sports. Additionally, sociocultural, legal, historical and political concepts as applied to sport will be integrated into the curriculum to enable students to develop industry-appropriate competencies. Coursework will also emphasize strategies for career success within the sports industry. Offered Fall, Winter.

**SAM 5750 Internship in Sports Management Cr. 1-6**

Professional experience in public or private institutions relevant to student's field of industry specialization. Offered Fall, Winter.

**Prerequisite:** SAM 5000

**Fees:** \$15

**Repeatable for 6 Credits**

**SAM 6300 Interscholastic Athletic Directing Cr. 3**

Michigan and national interscholastic athletic directing organizations; issues and skills to direct athletic programs in middle and secondary education. Philosophy, personnel, financial and general athletic policies and guidelines. Offered Yearly.

**Prerequisites:** SAM 2100 with a minimum grade of C

**SAM 6310 Collegiate Athletic Administration Cr. 3**

Provides an overview of intercollegiate athletic administration. Focuses on the history of college athletics, NCAA compliance rules and regulations, operations, finances, strategic planning, and critical issues and future trends that impact college sport. Offered Yearly.

**Prerequisites:** SAM 2100 with a minimum grade of C

**SAM 6320 Youth Sports and Recreation Cr. 3**

Explores issues related to organized and competitive sport for youth, with an emphasis on biological, psychological, and sociological perspectives. Emphasis is placed on the impact of sport managers and leaders in the delivery of youth sport programs. Offered Spring/Summer.

**SAM 6410 Introduction to Sports Administration Cr. 3**

Current categories of competitive sports and athletics identified and analyzed to determine potential administrative positions in their structures and the qualifications necessary for each position. Offered Fall, Winter.

**SAM 6530 Professional Sport Administration Cr. 3**

Introduction to the business strategies of a professional sports team, including an in depth look at breaking into the industry, the importance and value of community affairs, corporate sponsorship, business public relations and player relations. Offered Winter.

**Prerequisites:** SAM 2100 with a minimum grade of C

**SAM 6531 Sports Event Management Cr. 3**

Comprehensive study of the planning, maintenance, operations, financial considerations, customer engagement, and personnel management of sporting events and the facilities that host the events. Offered Spring/Summer.

**Prerequisites:** SAM 2100 with a minimum grade of C

**SAM 6560 Media Design and Communication Cr. 3**

Examines the impact sports and the media have on each other and explores the use of technology in promoting, marketing, and managing health, PE, recreation, and sports programs. Offered Winter.

**Prerequisites:** SAM 2100 with a minimum grade of C



**SAM 6570 Sports Marketing Cr. 3**

Concepts and principles of marketing as applied to sports. Topics include: structure of sports industry, sports markets and products, market research, and sports sponsorships. Offered Fall.

**Prerequisites:** SAM 2100 with a minimum grade of C

**SAM 6640 Legal Issues in Health, Physical Education and Recreation Cr. 3**

Identification and analysis of legal issues in the health, physical education, and recreation profession. Review of relevant litigation patterns. Offered Yearly.

**SAM 6660 Risk Management in Physical Education and Sports Cr. 3**

Fundamentals of safety and liability and the risks involved in managing activity-related programs. Development of knowledge and skills to recognize potential litigation in management, supervision and administration. Offered Fall.

**SAM 6661 Equity and Access in Sport Cr. 3**

Historical and contemporary sport and physical activity experience in context of race, socioeconomic class, gender, age, disability, and culture. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SAM 6750 Field Work in Sports Administration and Management Cr. 1-4**

Professional experience in public or private institutions relevant to student's specialization. Supervision by professional supervisor and university faculty. Can be taken at any time during student's program. Offered Fall, Winter.

**Repeatable for 8 Credits**

**SAM 7540 Concepts of Management in Health, Physical Education and Recreation Cr. 3**

Responsibilities and concerns of administrators of health, physical education and recreation programs. Basic administrative procedures, policy-making and evaluation; establishment of program goals; alternative management styles; leadership principles. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SAM 7581 Sport Finance Cr. 3**

Understanding financial management for planning, administering, and evaluating financial performance of sport-related entities. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SAM 8750 Internship in Sports Administration Cr. 1-8**

Professional experience in public or private institutions relevant to student's field of specialization. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$15

**Equivalent:** KHS 8750

**Repeatable for 8 Credits**

## SCE - Science Education

**SCE 2100 Integrated Science Content PK-6 Cr. 3**

**Satisfies General Education Requirement:** Natural Scientific Inquiry

This course will address core integrated science content topics, concentrating on PK-6 performance expectations; across all science disciplines: life/environmental science, physical science, earth/space science, and engineering/technology/design. Offered Every Term.

**Corequisite:** SCE 2105

**SCE 2105 Integrated Science Lab PK-6 Cr. 1**

This lab will provide the opportunity to authentically engage in science and engineering practices and scientific inquiry, use scientific modeling, and conduct controlled experiments; within and integrated across the science disciplines of life/environmental science, physical science, earth/space science, and engineering/technology/design. Offered Every Term.

**Corequisite:** SCE 2100

**Fees:** \$15

**SCE 5010 Biological Sciences for Elementary and Middle School****Teachers Cr. 3**

Significant biological principles, generalizations and understandings with relation to their use with children. Appropriate learning activities; experiments, field trips, text and reference materials, audio-visual resources, evaluation. Offered Every Term.

**Fees:** \$10

**SCE 5020 Physical Sciences for Elementary and Middle School Teachers Cr. 3**

Significant principles, generalizations and understandings in the physical sciences with relation to their use with children. Appropriate learning activities including experiments, field trips, reference materials, audio-visual resources. Offered Every Term.

**Fees:** \$10

**SCE 5030 Earth/Space Science for Elementary and Middle School Teachers Cr. 3**

Principles, generalizations and understandings related to teaching earth/space science to children. Learning activities, field trips, technology, and evaluation. Offered Every Term.

**Fees:** \$10

**SCE 5060 Methods and Materials of Instruction in Secondary School Science I Cr. 3**

Role of science in the secondary curriculum. Problems and techniques of teaching science in the secondary schools; objectives, planning laboratory experiments, demonstrations, directed study, student projects, text and reference material, audio-visual resources, evaluation. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Education.

**Fees:** \$10

**SCE 5070 Methods and Materials of Instruction in Secondary School Science II Cr. 3**

Problems of selecting and organizing teaching-learning materials in secondary school science. Development of illustrative instructional units. Resources for professional growth of science teachers; professional literature and organizations. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**SCE 5100 Integrated Science Content (PK-6) Cr. 3**

Addresses core integrated science content topics, concentrating on PK-6 performance expectations across all science disciplines: life/environmental science, physical science, earth/space science, and engineering/technology/design. Offered Every Term.

**Corequisite:** SCE 5105

**SCE 5105 Integrated Science Lab (PK-6) Cr. 1**

The lab provides the opportunity to authentically engage in science and engineering practices and scientific inquiry. Students will use scientific modeling, and conduct controlled experiments within, and integrated across, the science disciplines of life/environmental science, physical science, earth/space science, and engineering/technology/design. Offered Every Term.

**Corequisite:** SCE 5100

**Fees:** \$15

**SCE 6010 Safety in the Science Classroom Cr. 2**

Principles of Laboratory safety in all K-12 science classrooms, including legal responsibilities related to the use, storage and disposal of chemicals and biological specimens as well as legal and ethical use of living organisms in the classroom. Offered Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**SCE 6030 Advanced Studies in Teaching Science in the Junior High and Middle School Cr. 3**

Innovations and improvements in middle school and junior high school science teaching. Exploration of appropriate areas of study, development and selection of learning activities and materials; laboratory experiences in selected areas. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students in the College of Education.

**SCE 6040 Advanced Studies in Teaching Science in the High School Cr. 3**

Emphasis on methods of teaching biology and the physical sciences in the high school. Recent curriculum studies, research, and current problems. Laboratory experiments, equipment, textual and reference material, audio-visual resources, and evaluation procedures. Offered Every Other Year.

**Fees:** \$10

**SCE 6080 Teaching Environmental Studies Cr. 3**

Ecological concepts and environmental problems, possible solutions, and their implications for curriculum development and classroom teaching in K-12 educational settings. Science as a process is stressed throughout classroom activities, field trips, and assignments. Offered Every Other Year.

**Fees:** \$10

**SCE 7010 Special Topics in Science Education Cr. 1-3**

Current theories and issues related to science education: nature of science, equity, global education, interdisciplinary approaches, alternative forms of assessment and technology integration. Topics to be announced in Schedule of Classes. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

## SED - Special Education

**SED 5000 History, Philosophy, and Ethics of Teaching Students with Disabilities Cr. 2**

Historical developments leading to contemporary special and inclusive education. Philosophy of inclusive education. Ethical standards for special educators. This is a prerequisite for all SED courses. Offered Fall, Winter.

**SED 5075 Consultation and Collaboration for Inclusive Teaching Cr. 2**

Knowledge and skills of consultation, collaboration, and co-teaching to support students in a variety of educational settings, particularly inclusive contexts. Offered Intermittently.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 5080 Supportive Environments, Engaged Learning Cr. 2**

Relationships between environment, student engagement, and learning. Approaches for creating supportive, inclusive learning environments and increasing student engagement in learning. Offered Winter.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 5090 Transitions for Students with Disabilities Cr. 2**

Strategies for supporting students with disabilities and special needs who are in transition between schools and from school to adult life in community settings. Offered Fall, Winter.

**Prerequisites:** SED 5000 with a minimum grade of C

**Fees:** \$8

**SED 5110 Introduction to Teaching Students with Moderate/Significant Support Needs Cr. 3**

Medical terminology and interventions for students labeled cognitively impaired. Social model framework for understanding and supporting students with moderate to significant support needs (e.g., MARSE, cognitive impairment). Ten-hour clinical experience required. Offered Every Term.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 5115 Observation and Assessment of Students with Moderate/Significant Support Needs Cr. 3**

Using observation and assessment to monitor learning and plan instruction for learners with moderate to significant support needs (e.g., MARSE label cognitive impairment) in variety of educational contexts. Ten-hour clinical experience required. Offered Yearly.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 5121 Language Development and Instruction for Students with Moderate/Significant Support Needs Cr. 2**

Language-communication development and instruction for students with moderate to significant educational support needs (e.g., MARSE label cognitive impairment). Emphasis on utilizing augmentative and alternative communication systems. Offered Fall.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 5125 Teaching Students with Significant/Multiple Support Needs Cr. 3**

Curriculum and instructional for students with significant/multiple impairments in a variety of educational contexts (e.g., students with the label SXI). Offered Yearly.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 5130 Teaching Students with Moderate Support Needs Cr. 3**

Curriculum and instruction for students with moderate support needs (e.g., MARSE label cognitive impairment) in a variety of educational contexts. Ten-hour clinical experience required. Offered Winter.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 6021 Introduction to Teaching Students with Autism Spectrum Disorder Cr. 3**

Historical and current research on autism spectrum disorder (ASD), with personal, family, and professional perspectives. Focus on supports, services, and quality of life outcomes. Offered Every Other Year.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 6030 Teaching Students with Cognitive, Behavior, and Communication Differences Cr. 3**

Teaching students with cognitive and behavioral differences. Emphasis on strategies for supporting inclusive education. Offered Intermittently.

**Prerequisites:** SED 5000 with a minimum grade of C, SED 5010 with a minimum grade of C, SED 5075 with a minimum grade of C, SED 5080 with a minimum grade of C, SED 5090 with a minimum grade of C, and SED 6021 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SED 6040 Introduction to Early Childhood Special Education Cr. 3**

History, philosophy, legislation, and "best practice" of early intervention and educational programs for young children, birth to eight years old, who have developmental delays or disabilities. Offered Fall.

**SED 6050 Teaching Students with Communication Differences Cr. 3**

Teaching students with communication differences (i.e., students with autism spectrum disorder). Designing relationship based communication support, particularly in inclusive settings. Offered Fall.

**Prerequisites:** SED 5000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SED 6060 Teaching Students with Movement and Sensory Differences Cr. 2**

Movement and sensory differences in students with autism. Strategies for increasing student engagement in learning, social interaction, and inclusive educational contexts. Emphasis on supports for inclusion and supports provided by related service providers. Offered Yearly.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 6070 Assessment and Evaluation of Students with Autism Cr. 3**

This course examines assessment processes for students with autism in general and special education settings. It also examines the role assessment plays in identification, eligibility, IEP development, and student progress. Formal and informal methods for summative and formative assessments are also covered. Offered Yearly.

**Prerequisites:** SED 5000 with a minimum grade of C

**SED 7700 Trends in Inclusion for Students with Moderate/Significant Support Needs Cr. 3**

Advanced seminar in Special Education. Perspectives and applications of Disability Studies in Education for teaching students who have moderate/significant support needs. Offered Yearly.

**Prerequisites:** SED 5000 with a minimum grade of C, SED 5010 with a minimum grade of C, SED 5075 with a minimum grade of C, SED 5080 with a minimum grade of C, SED 5090 with a minimum grade of C, SED 5110 with a minimum grade of C, SED 5125 with a minimum grade of C, SED 5130 with a minimum grade of C, and TED 7060 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SED 7750 Trends in Inclusion for Students with Autism Spectrum Disorders Cr. 3**

Advanced seminar in Special Education. Examines perspectives and applications of Disability Studies in Education for teaching students who have autism spectrum disorders. Offered Yearly.

**Prerequisites:** SED 5000 with a minimum grade of C, SED 5010 with a minimum grade of C, SED 5075 with a minimum grade of C, SED 5080 with a minimum grade of C, SED 5090 with a minimum grade of C, SED 6021 with a minimum grade of C, SED 6030 with a minimum grade of C, SED 6050 with a minimum grade of C, SED 6060 with a minimum grade of C, and TED 7060 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SED 7760 Teaching Students with Learning Disabilities: K-12 Cr. 3**

Methods, materials, and procedures for education of children with learning diversity as they relate to concerns in communication disorders and sciences. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SED 7790 Language Basis of Learning Disabilities Cr. 3**

Normal language acquisition and development, language pathology including neurological process involved in speech reception and production, assessment of language disorders as they relate to children and adolescents with learning disabilities. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SED 7800 Practicum in Educating Students with Disabilities Cr. 1-24**

Teaching students with disabilities with emphasis on inclusive teaching. Focus on area of certification/endorsement. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 24 Credits**

**SED 7801 Special Education Student Teaching: First Endorsement Cr. 3**

Teaching students with disabilities with emphasis on inclusive teaching; focus on area of certification/endorsement. Intended for students earning their first special education endorsement at the master's level. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SED 8700 Advanced Seminar in Special Education Cr. 3**

Students collaborate with faculty to explore key issues of policy and practice related to education of students with disabilities and special needs. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Education or Education Specialist Cert degrees.

## SEM - Sport and Entertainment Management

**SEM 5100 Introduction to Sport & Entertainment Management Cr. 3**

Provides an overview of the sport & entertainment industry, and examines issues encountered by sport and entertainment managers with special emphasis on the use of business principles to identify, attract and retain consumers. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** MGT 5100

**SEM 7100 Sport & Entertainment Management Cr. 3**

Provides an overview of the sport & entertainment industry. Examines issues encountered by sport and entertainment managers. Emphasis on use of business principles to identify, attract, and retain consumers. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SEM 7110 Sport & Entertainment Marketing Communications Cr. 3**

Explores the role of sport and entertainment marketing in the attraction and retention of customers. Emphasizes branding and the linkages across marketing communications. Topical areas include advertising, sponsorship, public relations, direct marketing, social media, and sales promotion. Offered Yearly.

**Prerequisite:** SEM 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SEM 7120 Event Planning and Management Cr. 3**

Explores the nature and role of events. History, significance, impacts and role of sporting events, festivals, the arts and cultural entertainment, and business events. Cultivate business skills involved in operations, marketing, sponsorship and fundraising for events. Offered Yearly.

**Prerequisite:** SEM 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SEM 7130 Managerial Finance in Sport & Entertainment Cr. 3**

Application of financial skills and principles in sport and entertainment. Budgeting, revenue generation, profits and loss, and taxation. Offered Every Term.

**Prerequisite:** SEM 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SEM 7140 Sports & Entertainment Economics Cr. 3**

Economic theory and principles applied to the business of sport and entertainment. Demand, costs and profit maximization, labor issues, antitrust, and tax policy examined. Strategic decision-making on current issues. Offered Yearly.

**Prerequisite:** SEM 7100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SEM 7995 Directed Study in Sport and Entertainment Management Cr. 3**

Advanced independent readings and research under supervision of a graduate faculty member in areas of special interest to student and faculty member. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SEM 8000 Special Topics in Sport and Entertainment Management Cr. 3**

Current developments and emerging trends in Sport and Entertainment Management and Sales/Events Management. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

# SLA - Slavic

## SLA 2310 Short Fiction from Central Europe and Russia Cr. 3

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

Explores how writers use short fictional forms, such as parable, short story, fairy tale, and satire, to express important themes in the Central European experience, including violence and cruelty, freedom and imprisonment, utopian visions, and urban life. Offered Fall.

**Equivalent:** GER 2310

## SLA 3410 New Soil, Old Roots: The Immigrant Experience Cr. 3

**Satisfies General Education Requirement:** Civ and Societies (CLAS only), Diversity Equity Incl Inquiry, Foreign Culture, Global Learning Inquiry Armenian, German, Jewish, Polish, Russian and Ukrainian immigration to the United States, its effects on the cultures (language, literature, religion, politics, music, art and theatre) of these ethnic groups and its influence upon American culture. Offered Fall.

**Equivalent:** ARM 3410, GER 3410, POL 3410, RUS 3410

## SLA 3710 Russian and East European Film Cr. 3-4

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Visual Performing Arts Major Russian, Polish, Czech, Ukrainian and Armenian films viewed and discussed from political, historical, cultural and aesthetic points of view. Offered Yearly.

## SLA 3750 Polish and Yugoslavian Cinema Cr. 3

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Two national cinemas introduced through milestone films and lesser-known cinematic gems produced before and after the fall of communism. Offered Every Other Winter.

**Equivalent:** POL 3750

## SLA 3800 Topics in Slavic Studies Cr. 3

Special topics relating to Slavic languages, literatures and cultures, such as drama, the Gulag, and contemporary culture. Offered Yearly.

**Equivalent:** POL 3800, RUS 3810

**Repeatable for 9 Credits**

# SLP - Speech and Language Pathology

## SLP 1010 Elementary Sign Language: American Sign Language Cr. 4

This course introduces the basics of American Sign Language (ASL). It is designed to help students with no or minimal sign language skills develop both basic skills in use of ASL and knowledge of Deaf culture, and it reviews basic grammar coupled with classroom practice to learn to communicate in signs. Offered Intermittently.

## SLP 1020 Advanced Sign Language Cr. 4

This course introduces advanced use of American Sign Language (ASL). Students develop receptive and expressive abilities and learn to recognize and demonstrate more sophisticated grammatical features of American Sign Language (ASL). Offered Intermittently.

**Prerequisites:** SLP 1010 with a minimum grade of C

## SLP 3990 Directed Study Cr. 1-3

Undergraduate study in areas not covered in scheduled curriculum, including library and field work. Offered Fall, Winter.

**Repeatable for 4 Credits**

## SLP 4998 Honors Seminar Cr. 3

Bibliographic and research experiences; review of recent literature; research project. Offered Yearly.

## SLP 5080 Phonetics Cr. 3

Multisensory study of sounds in the English language, emphasizing acoustic, physiologic, kinesiology approaches. Offered Fall, Winter.

**Equivalent:** LIN 5080

## SLP 5090 Anatomy and Physiology of the Speech Mechanism Cr. 3

General science of normal speech; anatomy, physiology and mechanics of respiration, phonation, resonance, articulation. Offered Fall, Spring/Summer.

## SLP 5120 Speech Science Cr. 3

Speech production, acoustics of sound, perception of the speech signal. Offered Fall, Winter.

**Prerequisites:** SLP 5080 with a minimum grade of C (may be taken concurrently) and SLP 5090 with a minimum grade of C (may be taken concurrently)

## SLP 5300 Introduction to Speech-Language Pathology Cr. 3

Speech-language pathology in clinical and educational settings; classification of communication disorders and related management strategies. Offered Every Term.

## SLP 5310 Clinical Methods in Communication Disorders Cr. 3

Procedures and materials for clinical diagnosis of articulatory, language, rhythm, and voice deficits of organic and non-organic causation. Offered Fall, Winter.

**Prerequisites:** SLP 5080 with a minimum grade of C (may be taken concurrently), SLP 5090 with a minimum grade of C (may be taken concurrently), and SLP 5300 with a minimum grade of C

## SLP 5320 Normal Language Acquisition and Usage Cr. 3

Language development in children and the associated areas of emotional and motor development; language stimulation techniques and programs. Offered Every Term.

**Fees:** \$10

## SLP 5360 Clinical Practice in Speech-Language Pathology Cr. 3

**Satisfies General Education Requirement:** Writing Intensive Competency Supervised experience in application of methods of diagnosis and treatment of clinical cases. Offered Every Term.

**Prerequisites:** SLP 5310 with a minimum grade of B, SLP 6460 with a minimum grade of B, and SLP 6480 with a minimum grade of B

**Fees:** \$60

**Repeatable for 6 Credits**

## SLP 6360 Advanced Clinical Practice in Speech-Language Pathology Cr. 3

Supervised experience in application of methods of diagnosis and treatment of clinical cases. Offered for graduate credit only. Offered Every Term.

**Prerequisite:** SLP 5360 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$60

**Repeatable for 12 Credits**

## SLP 6460 Language and Phonological Disorders Cr. 3

Introduction to the clinical management of articulation and language disorders. Offered Fall, Winter.

**Prerequisites:** SLP 5080 with a minimum grade of C (may be taken concurrently), SLP 5300 with a minimum grade of C, and SLP 5320 with a minimum grade of C

## SLP 6480 Organic and Fluency Disorders Cr. 3

Introduction to the clinical management of cleft palate, voice, and stuttering disorders. Offered Fall, Winter.

**Prerequisites:** SLP 5080 with a minimum grade of C (may be taken concurrently), SLP 5300 with a minimum grade of C, and SLP 5320 with a minimum grade of C



**SLP 6640 Language Development and Disorders: Infants and Preschool Children Cr. 3**

Theory, assessment and intervention with young children and their families. Emphasizes clinical problem solving, diagnosis, prevention and management in the context of cognitive, linguistic and neurological development. Offered for graduate credit only. Offered Fall.

**Prerequisite:** SLP 5300 with a minimum grade of C+ and SLP 5320 with a minimum grade of C+

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7000 Research Methods in Communication Disorders Cr. 1**

Introduction to methods of research design and methods of analysis (quantitative and qualitative) in speech and hearing sciences and disorders. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7100 Research Methods: Evidenced- Based Practice Cr. 1**

Using evidence-based practice in communication disorders and on methods for conducting original research. Offered Winter.

**Prerequisite:** SLP 7000 with a minimum grade of C+

**Restriction(s):** Enrollment is limited to students with a major in Communication Sci & Disorders or Speech-Language Pathology; enrollment is limited to Graduate level students.

**SLP 7155 Special Topics in Communication Disorders Cr. 1-4**

Lecture and discussion of special topics in communication disorders across the lifespan. Offered Fall.

**Prerequisite:** SLP 6360 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**SLP 7320 Professional Issues in Speech-Language Pathology Cr. 1**

Practice issues, including ethics, scope of practice, multicultural concerns, professional conduct, reimbursement, and professional resources. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7360 Internship in Speech Pathology Cr. 6**

Advanced professional experience in clinical speech language pathology. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**SLP 7380 Clinical Process in Speech-Language Pathology Cr. 3**

Development of clinical skills and knowledge in diagnostic and treatment processes. Introduction to professional issues, counseling and ethical practices in speech-language pathology practice. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**Repeatable for 9 Credits**

**SLP 7520 Counseling in Speech-Language Pathology Cr. 1**

Basic counseling principles and techniques applied to patients and their family members during evaluation and treatment of communication and swallowing disorders. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Special Educ-Speech Pathology or Speech-Language Pathology; enrollment is limited to Graduate level students.

**SLP 7590 Dysphagia Cr. 3**

Assessment and management of neurologic and mechanical swallowing disorders in children and adults. Offered Spring/Summer.

**Prerequisite:** SLP 5090 with a minimum grade of C+

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7600 Phonological Disorders Cr. 3**

The etiology, diagnosis and advanced treatment regimens of phonological disorders in children and adults. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7610 Stuttering Cr. 3**

The etiology, diagnosis and treatment of stuttering disorders in children and adults. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7620 Voice Disorders Cr. 2-3**

The etiology, diagnosis and treatment of voice disorders in children and adults. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7621 Craniofacial Syndromes Cr. 2**

Theoretical and applied issues in resonance disorders that result from oral clefting and other craniofacial syndromes. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to students with a major in Speech-Language Pathology; enrollment limited to students in the MA in Liberal Arts & Sciences program; enrollment is limited to Graduate level students.

**SLP 7630 Neuroscience of Communication Disorders Cr. 3**

Neuroscience, neurophysiology, neuropsychology, neuroimaging, normal aging processes and neurodevelopment in communication sciences and disorders. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** AUD 7630

**SLP 7640 Language Disorders in the School-Age Population Cr. 3**

Assessment and intervention in assessment, diagnosis, treatment, and management of language and speech disorders in school-age populations. Emphasis on service delivery in context of curriculum and role of speech-language pathologist in school-based practice. Offered Fall.

**Prerequisite:** SLP 6640 with a minimum grade of C+

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7660 Neuromuscular Speech Disorders Cr. 3**

Theory, assessment and intervention in neurologic speech disorders in children and adults (dysarthria, acquired apraxia of speech). Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7680 Acquired Linguistic and Cognitive Disorders in Adults Cr. 4**

Theory, assessment, and management/treatment of adult patients with aphasia, traumatic brain injury, right-hemisphere brain damage, and dementia. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7700 Advanced Research Methods in Communication Disorders Cr. 1**

Development of advanced research writing skills, for presentation of research in written and oral format. Development of research presentation skills; presentation of research project in departmental forum. Offered Winter.

**Prerequisite:** SLP 7000 with a minimum grade of C+

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 7990 Directed Study Cr. 1-9**

Graduate study in areas not covered in scheduled curriculum, including library and field work. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**SLP 7991 Directed Study: PhD Cr. 1-9**

Directed research for major, and pilot work for dissertation. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Speech-Language Pathology; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy degree.

**Repeatable for 9 Credits**

**SLP 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**SLP 8390 Seminar in Speech-Language Pathology Cr. 3**

Topics to be announced in Schedule of Classes. No topic may be repeated for credit. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 18 Credits**

**SLP 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**SLP 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**SLP 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SLP 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SLP 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SLP 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SLP 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## SOC - Sociology

**SOC 1010 Understanding Human Society Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences  
Analysis of basic sociological concepts and principles to give the student an understanding of the perspective that sociology brings to the study of human society. Offered Every Term.

**SOC 1020 Social Problems Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

Consideration of major contemporary social problems which reveal structural strains, value conflicts, deviations and changes in society. Analysis of socio-cultural factors creating problems and of possible solutions. Offered Every Term.

**SOC 2050 The Study of Non-Violence Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Intellectual and social roots of non-violence and the practice of non-violence in different people's life styles. Historical and political forces and movements related to non-violence. (Some sections linked to Peace and Justice Learning Community.) Offered Every Term.

**Equivalent:** HIS 2530, PCS 2050, PS 2550

**SOC 2100 Topics in Sociology Cr. 3**

Specialized and topical studies of sociological themes. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Repeatable for 15 Credits**

**SOC 2200 Sociology as a Vocation I Cr. 2**

Introduces students to the sociological literacy framework, the curriculum in the sociology major, the potential career paths that sociology majors can pursue, and sociology as an academic discipline and a vocation rather than just a major. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Sociology or Sociology Honors.

**SOC 2201 Race Relations in Metro Detroit Cr. 3**

This course introduces how race relations are intertwined with the historical trajectory and social processes Metro Detroit. It provides historical and contemporary data about racial inequality and segregation in Metro Detroit. It also considers the role of various social institutions (e.g., educational system, religious institutions, criminal justice system) in resisting and perpetuating racial inequalities in Metro Detroit. Offered Yearly.

**SOC 2202 Gendered Worlds Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

Introduces the ideas that have been central to the sociological study of gender and society. Describes historical and contemporary gender inequalities, the role of various social institutions in perpetuating gender inequality, the social construction of gender, and the way gender roles vary both historically and across cultures. Offered Yearly.

**SOC 2203 Social Psychology Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry, Social Sciences  
Introduction to the sociological study of social psychology. This course describes the sociological aspect of the self and explores how individuals experience the self in relation to society. Offered Yearly.

**SOC 2204 Outsiders and Deviants Cr. 3**

Provides an overview of the sociological study of deviance, emphasizing crime and other deviant behaviors and conditions. Offered Yearly.

**Equivalent:** CRJ 2204

**SOC 2205 Sociology of the Environment Cr. 3**

Provides an introduction to the sociology of the environment, the study of the interrelationships of human social systems and the environment, with a primary focus on the social aspects of environmental concerns. Offered Yearly.

**SOC 2206 Political Sociology Cr. 3**

Examines the sociology of politics and explores sociological analysis of political processes in the United States. Offered Every Other Year.

**Equivalent:** PS 2206

**SOC 2207 Sociology of Development Cr. 3**

This course covers the major sociological approaches to issues of development and social change, with a focus on the problems and prospects facing the Third World. Offered Yearly.

**SOC 2208 Sociology of Sport Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry  
Examines the relationship between sport and society, with an emphasis on the relationship of sport to social variables, social institutions, and social problems. Offered Yearly.

**SOC 2209 Sociology of Religion Cr. 3**

**Satisfies General Education Requirement:** Social Inquiry  
Explores current sociological debates as they pertain to the complex and multi-faceted relationship between religion and other social institutions. Offered Yearly.

**SOC 2210 Sociology of Health and Medicine Cr. 3****Satisfies General Education Requirement:** Social Inquiry

Designed to introduce the field of medical sociology. The course investigates the impacts of social and institutional variables on health behaviors and outcomes. It also considers the cultural, organizational, and economic functioning of various healthcare institutions. Offered Yearly.

**SOC 2211 Numbers in Society Cr. 3****Satisfies General Education Requirement:** Quantitative Experience Comp

To fully understand the use of numbers in society, we must consider that numbers and statistics are social products created through people's actions: people have to decide what to count and how to count it, people have to do the counting and the other calculations, and people have to interpret the resulting statistics, and decide what the numbers mean.

This course offers a quantitative experience to students from various social science disciplines. Students do not need a strong mathematical, statistical, or computing background to succeed in this course. The aim is to cultivate critical thinking skills to assess and evaluate numbers and statistics, distinguish between claims with evidence and those without, and tell the information apart from misinformation. Offered Yearly.

**SOC 2212 From Cradle to Grave: Drugs and Society Across the Life Course Cr. 3**

Substance misuse and abuse is a costly social problem in the United States. This course will follow the life stage metaphor to analyze the effects of substance use and abuse on individuals, communities, organizations, and society. We will examine historical and institutional approaches to the problem as well the causes, consequences, prevention strategies, treatment programs, and policy debates currently comprising the field. Offered Yearly.

**SOC 2245 Blacks and Sport in the United States Cr. 3**

The intersection between race and sport in the United States, examined to better understand the role of sports in our socialization and cultural construction. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Undergraduate level students.**Equivalent:** AFS 2245**SOC 2300 Social Inequality Cr. 3****Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

Structure and process in society, institutions, communities, and organizations. Scientific analysis of organization, conflict, and change in the economy, government, religion, education, and family. Offered Yearly.

**SOC 2500 Introduction to Urban Studies Cr. 4****Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

In this introductory urban studies course, students learn about the historic and contemporary forces driving urbanization with an emphasis on US cities and urban areas; the effects of these forces on diverse population groups; and challenges facing cities and strategies to resolve them. Although the course will draw from international contexts, wherever possible, experiences of and from the Detroit metro—city and suburbs—will be used to illustrate particular themes. Student learning centers on an examination of issues related to diversity, equity, and inclusion, and broader social phenomena. Offered Every Term.

**Equivalent:** GPH 2000, HIS 2000, PS 2000, US 2000**SOC 2510 People on the Move Cr. 3****Satisfies General Education Requirement:** Global Learning Inquiry, Social Inquiry, Social Sciences

Birth, death and migration investigated with respect to their social causes and consequences for society and human behavior. International migration will be a major focus of this course, since populations are always shifting in global society. Population growth and development will also be covered. Offered Every Other Year.

**SOC 2600 Race and Racism in America Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Examination of the nature and practice of racism in American society from its historical foundations to its contemporary institutional forms. Offered Every Other Year.

**Equivalent:** AFS 2600**SOC 3050 Basic Sociological Theory Cr. 3**

Introduction to sociological theory from a general conceptual framework. Major concepts, theoretical positions and recent trends in theoretical sociology will be considered. Offered Fall, Winter.

**Prerequisite:** SOC 1010 with a minimum grade of D- or SOC 1020 with a minimum grade of D-**SOC 3101 Special Topics in Sociology Cr. 1**

Covers introductory topics in Sociology. Offered Intermittently.

**Repeatable for 3 Credits****SOC 3200 Methods of Social Research Cr. 3**

An elementary research methods course that covers the process of doing social research, including research design, data collection techniques, processing and analysis of data, as well as the interpretation of data. Offered Every Term.

**SOC 3220 Introduction to Social Statistics Cr. 3**

Introduction to major concepts in social statistics including level measurement, distributions, probability and bivariate hypothesis testing. Discussion of the role that statistics play in discussions and popular understandings of social issues. Offered Yearly.

**SOC 3400 Exploring Marriage and Other Intimate Relationships Cr. 3**

Students examine, from a sociological perspective, issues concerning intimate relationships. Major emphasis on description and analysis of changes in monogamous marriage. Non-traditional marital forms also examined. Focus upon the intimate relationships as they relate to personal, functional concerns of the student. Offered Every Other Year.

**SOC 3440 American Medicine in the Twentieth Century Cr. 3**

Major historical benchmarks in the making of the medical system in the U.S., including developments in medicine and medical knowledge, as well as social and political factors that influenced their reception and implementation. Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.**Equivalent:** HIS 3440**SOC 3710 Learning About Your Community Through Research Cr. 4**

Blend of participatory, in-service, and classroom work to enhance undergraduate research skills by linking social science theories and concepts to hands-on community-based learning opportunities. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students.**Equivalent:** LAS 3710**SOC 3840 Corrections Cr. 3**

Description and analysis of legal, social and political issues affecting contemporary correctional theory and practice. Topics include: history of corrections, function and social structure of correctional institutions, institutional alternatives including diversion, probation and parole. Field trips to institutions and community correctional settings normally required. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.**Equivalent:** CRJ 3350

**SOC 3900 LGBTQ Health Cr. 3**

Centers on LGBTQ voices and takes an intersectional socioecological approach to exploring social determinants of health, and a range of health outcomes and challenges in LGBTQ communities; and the implications for public health research, policy, and practice to improve LGBTQ health. Introduces students to key conceptual frameworks for understanding LGBTQ health across the lifespan and promoting health equity. Offered Yearly.

**Equivalent:** PH 3900

**SOC 3990 Directed Study Cr. 1-3**

For students who show evidence of ability and interest, and desire to do advanced reading. Part-time and student instructors are ineligible to supervise directed study. Offered Every Term.

**Repeatable for 12 Credits**

**SOC 4010 Sociology as a Vocation II Cr. 1**

Provides an opportunity change for students to think retrospectively about their experiences in sociology and to think prospectively about their next steps in their careers. Students will systematically document the courses they took, projects they participated in, and assignments they completed in the past to build a personal academic portfolio. Offered Fall, Winter.

**Prerequisite:** SOC 2200 with a minimum grade of P

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior.

**SOC 4201 Seminar in Race and Ethnicity Cr. 3**

Introduces contemporary, empirical, and sociological research within the sociology of race and ethnicity. Offered Yearly.

**SOC 4202 Seminar in the Sociology of Gender Cr. 3**

Provides an overview of the current state of knowledge in the sociology of gender with an emphasis on recent empirical research. Offered Yearly.

**SOC 4203 Seminar in Global Inequality and Development Cr. 3**

The primary goal of this course is to introduce students to the sociological research on global inequality and development with an emphasis on recent empirical studies. Offered Yearly.

**SOC 4204 Seminar in Aging and the Life Course Cr. 3**

Provides students with an overview of some major issues and research findings relating to aging and the life course with an emphasis on recent empirical studies. Offered Yearly.

**SOC 4205 Seminar in Medical Sociology Cr. 3**

Provides students with an overview of the current state of knowledge in medical sociology with an emphasis on recent empirical papers. Offered Yearly.

**SOC 4206 Gangs, Bowling Alleys, and the Internet: Seeing Sociology Everywhere Cr. 3**

This seminar provides students with a broad overview of the vast breadth and evolution of topics, perspectives, and methodologies encompassed within the discipline of sociology and related fields, by an intensive study of some of the classic works in the sociological literature. Offered Intermittently.

**SOC 4207 Cameras and Classrooms: Methods of Visual Sociology Cr. 3**

How many times a day do you interact with visuals? Likely, a lot. Photographs on social media, scenes from movies, attention-grabbing posters on campus, or thought-provoking book covers are all around you. In this class, you are going to be asked to slow down your process of interacting with these types of visuals. You will work through visual sociological theory and methodology to consider a new lens in processing visuals and be encouraged to ask questions like why is this specific visual used in its particular context? What may we assume from it? How does it relate to our own lives, or challenge our previously held assumptions? Offered Yearly.

**SOC 4600 Internship in Sociology Cr. 3**

Sociology majors or minors volunteer at a local organization or agency that relates to their career interests. Assignments include completing internship hours, keeping a journal, completing a resume, and writing a research paper. Offered Fall, Winter.

**Prerequisite:** SOC 1010 with a minimum grade of D or SOC 2300 with a minimum grade of D or SOC 3200 with a minimum grade of D

**Restriction(s):** Enrollment is limited to students in the Department of Sociology.

**Repeatable for 9 Credits**

**SOC 4996 Sociology Capstone Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency This course reviews and extends the sociological knowledge that students have gained throughout the sociology curriculum. Students will discuss contemporary sociological issues in relation to classic sociological ideas. Offered Fall, Winter.

**Prerequisites:** SOC 1010 with a minimum grade of D-, SOC 2200 with a minimum grade of D-, SOC 3200 with a minimum grade of D-, and SOC 3000-4999 with a minimum grade of D-

**Restriction(s):** Enrollment is limited to students in the Department of Sociology.

**Repeatable for 6 Credits**

**SOC 4999 Sociology Honors Thesis Cr. 3**

Serves as a culminating experience honors students in sociology. Honors students in this course pursue original research under the tutelage of a faculty member of their choosing. Offered Every Term.

**Prerequisites:** SOC 1010 with a minimum grade of D-, SOC 2200 with a minimum grade of D-, SOC 3200 with a minimum grade of D-, and SOC 3000-4999 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students with a major in Sociology Honors.

**Equivalent:** SOC 4996

**Repeatable for 6 Credits**

**SOC 5010 Selected Sociological Topics Cr. 1-4**

Topics to be announced in Schedule of Classes. Offered Yearly.

**Repeatable for 20 Credits**

**SOC 5360 Introduction to Medical Sociology Cr. 3**

Topics include the definition of illness, the distribution of death and disease in society, health promotion, help-seeking behavior, socialization of health care providers, the delivery of health care, and health care reform. Offered Yearly.

**SOC 5410 Marriage and Family Problems Cr. 3**

Social and historical context of marriage and family problems. Power, conflict, communication and crisis as they relate to the nature and dynamics of the family. Problem solving techniques; specific family problems: divorce or child abuse. Offered Every Term.

**SOC 5570 Race Relations in Urban Society Cr. 3**

Theoretical orientations applied analytically to enhance an understanding of the patterned structures of privilege in society which are based on race. Inequality, segregation-desegregation, pluralism; social structural frameworks; some attention to social-psychological aspects of topics such as prejudice and racism. Offered Intermittently.

**Equivalent:** AFS 5570



**SOC 5580 Law and the African American Experience Cr. 4**

In-depth examination of the African American experience with law in the U.S.; historical development of the U.S. Constitution; legal barriers to equality and the influence of race on the law; use of law as a political instrument; participation of blacks in the legal process; comparisons with other countries. Offered for undergraduate credit only. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Equivalent:** AFS 5580

**SOC 5700 Seminar in Social Inequality Cr. 3**

Sociological framework for analyzing several inequalities in contemporary U.S. society. Race, class, and gender as individual topics and as they intersect in society; inequalities in personal life experience. Offered Yearly.

**SOC 5760 Health and Life Course Cr. 3**

Personal, interpersonal and institutional significance of aging and age categories. Sociological dimensions of aging based on physical, social-psychological, and demographic backgrounds. Offered Yearly.

**SOC 5800 Topics in the Sociology of Sex and Gender Cr. 3**

Explores the sociology of gender as one of the most basic organizing mechanisms in society. Covers a broad overview of gender including the following themes: feminist theory, bodies, masculinities, work, work and family, families, migration, and politics. Offered Intermittently.

**Prerequisite:** SOC 4050 with a minimum grade of D-

**SOC 6050 Sociological Theory I Cr. 3**

Sociological theorists before 1920, their thought and the historical context in which such thought developed. Offered Yearly.

**Prerequisite:** SOC 2000 with a minimum grade of C-

**SOC 6060 Sociological Theory II Cr. 3**

Historical and theoretical analysis of sociological thought in the present century. Current trends in sociological theory. Offered Intermittently.

**Prerequisite:** SOC 6050

**SOC 6070 Sociological Analysis Cr. 3**

An intensive examination of a wide range of sociological studies, designed to acquaint the student with how sociologists deal with important theoretical issues, using a variety of methods and sources of data. Particular attention will be paid to the logical coherence of the studies and to the fit between data and interpretation. Offered Every Other Year.

**Prerequisite:** SOC 6050 with a minimum grade of B

**SOC 6280 Social Statistics Cr. 3**

Basic techniques for organizing and describing social data, measures of central tendency and dispersion, probability theory and hypothesis testing, tests of significance and confidence intervals, measures of association for two variables, analysis of variance. Offered Yearly.

**SOC 6750 Sociology of Urban Health Cr. 3**

Review of theories and research on health status and health care delivery issues in urban communities. Offered Intermittently.

**SOC 7000 Internship in Applied Sociology Cr. 3**

Guided internship with Detroit metropolitan private and public organizations arranged and supervised through the Program in Applied Sociology and Urban Studies. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7010 Special Topics Cr. 1-16**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 16 Credits**

**SOC 7030 Introduction to Graduate Studies in Sociology Cr. 1**

Introduction to the profession of sociology and areas of specialization. Workshops include conference presentations, mentoring, external grants, proposal development, academic job market and publishing. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Sociology; enrollment is limited to Graduate level students.

**SOC 7050 Comparative Schools of Sociological Theory Cr. 3**

This course will analyze and compare diverse theories and schools from a broad perspective. It examines early origins of sociological thought and progression of sociological theory of the 19th and 20th centuries. By studying the writings of classical social theorists like Marx, Weber, Durkheim, Du Bois, and early feminists, it will connect with 20th century social theorists (e.g., Simmel, Mead, Cooley, Parsons, Goffman, Bourdieu, Foucault) and major schools of thought (e.g., structural functionalism, symbolic interactionism, phenomenology). Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7100 Women and Health Cr. 3**

Analysis of sociological issues surrounding women and health, including gender differences in morbidity and mortality, the use of health services, interaction with providers, gender differences in mental disorder, alcoholism, drug abuse, gender roles and the professions of physicians and nurses. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7200 Advanced Survey of Approaches and Techniques of Social Research Cr. 3**

Advanced conceptual treatment of the primary concerns of social research: perspectives and types of social research, research designs, sampling techniques, data-gathering techniques and instrument construction, data analysis and presentation, interpretation and reporting of the results. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7220 Seminar in Survey Research Methods Cr. 3**

Hands-on approach to understanding the strengths and potential pitfalls of the survey method. Topics include: design of survey research (including theory, measurement and ethics), sampling (including special populations), questionnaire development and survey administration. Offered Intermittently.

**Prerequisite:** SOC 6800 with a minimum grade of C and SOC 7200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7260 Qualitative Sociology Cr. 3**

Introduction to qualitative theories and methods through a series of research projects. Students collect their own data, process and analyze it. Projects are presented in class; relevant literature and debates are read and discussed. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7270 Analysis of Evaluation Data Cr. 3**

Focuses on the analysis of causal effects for program evaluation data using both experimental and observational data. Models for the estimation of causal effects from experimental design are presented, including models for individual and cluster-level randomized trials, models for factorial and fractional experimental designs, and models for implementation fidelity. Models for the estimation of causal effects from non-experimental observational data include regression discontinuity analysis, propensity score methods, inverse probability weighting, sensitivity analysis to estimate selection bias and the estimation of effect bounds. Offered Intermittently.

**Prerequisites:** SOC 6280 with a minimum grade of B, SOC 7200 with a minimum grade of B, SOC 7260 with a minimum grade of B, and SOC 7290 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7280 Analysis of Complex Survey Data Cr. 3**

Provides students the tools for analyzing complex, and often longitudinal, data sets with the use of statistical software packages such as SPSS and SAS. Offered Intermittently.

**Prerequisites:** SOC 6280 with a minimum grade of B, SOC 7200 with a minimum grade of B, SOC 7260 with a minimum grade of B, and SOC 7290 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7290 Advanced Social Statistics Cr. 3**

Multiple and partial correlation and multiple regression, dummy variable analysis, analysis of covariance, causal models for multi-dimensional contingency tables, path analysis techniques, introductory factor analysis, Markov chains, selected additional topics. Offered Yearly.

**Prerequisite:** SOC 6280 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7500 Advanced Qualitative Methods Cr. 3**

Advanced analysis of qualitative methods, including but not limited to in-depth interviewing, focus groups, ethnography, discourse analysis, field research, narrative analysis. Stages of sampling, data collection, coding, and data analysis. Offered Intermittently.

**Prerequisite:** SOC 7260 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7510 Advanced Statistics II Cr. 3**

Explores three of the most widely used advanced statistical methods in the social sciences: hierarchical linear modeling (HLM), also known as multi-level modeling; event history analysis (EHA); and structural equation modeling (SEM). We will also learn logistic regression and possible extensions to other categorical outcome techniques. Each of these techniques has been developed to handle situations, data structures, outcomes, and research questions that are difficult, inappropriate, or impossible to handle using typical regression models (both linear and categorical). Offered Intermittently.

**Prerequisite:** SOC 6280 with a minimum grade of B and SOC 7220 with a minimum grade of B and SOC 7290 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7520 Advanced Field Research Cr. 3**

This graduate course is designed as a practice oriented, interactive seminar. Students are expected to select their own social group or geographic location in the Detroit Metro area and perform both participant observations and interviewing. We explore issues and dilemmas encountered in ethnographic research, including ethics, choosing a site, entry/access/exit, analyses, and writing about your data. This course is far more focused on the practice of doing ethnography than it is on exploring the philosophical or methodological justifications of this approach over other methodologies. Consequently, students should begin this course with an idea for a qualitative study so the material is relevant to a particular project. Offered Intermittently.

**Prerequisite:** SOC 7260 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7530 Social Network Analysis Cr. 3**

Social Network Analysis (SNA) has roots in sociology and anthropology, and representative early works will be examined. Recent interdisciplinary endeavor with contributions from physicists, computer scientists, mathematicians, and statisticians make the network paradigm more accessible to empirical researchers now, and these will be introduced. Specific network applications to be discussed include health networks, collaboration networks, online social networks, communication networks, and terrorist networks. The course materials are intended to be of interest to students from a wide range of disciplinary backgrounds, including sociology, anthropology, criminal justice, public health, statistics, physics, computer science, and related fields. Offered Intermittently.

**Prerequisite:** SOC 6280 with a minimum grade of B and SOC 7290 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7760 Health and Life Course Cr. 3**

Focuses on life course theory, methods, and their application. Working from a life course perspective, students will learn various theoretical and methodological approaches to analyze health as well as explain health inequality and disparities. Key concepts, such as age, period, and cohort, found in the life course literature will be covered. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7770 Seminar in Medical Sociology Cr. 3**

Converging issues of theory, research and practice in general hospitals, mental hospitals, and nursing homes. Structure of institutions and the adaptation of individuals within them. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7780 Topics in the Sociology of Health and Illness Cr. 3**

Considers the influence of social environment and social experience on health and illness, emphasizing the unique perspectives sociology offers in the larger inter-disciplinary discussion of health and focusing on differences in health across social groups. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**SOC 7800 Topics in the Sociology of Sex and Gender Cr. 3**

Explores the sociology of gender, as one of the most basic organizing mechanisms in society. Covers a broad overview of gender, including the following: themes: feminist theory, bodies, masculinities, work, work & family, families, migration, and politics. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**SOC 7810 Race Relations in Urban Society Cr. 3**

Covers the historical and contemporary effects of racial segregation on racial inequality in U.S. urban environments, with a special focus on Metro Detroit. The course also assesses the role social institutions like religious organizations, politics, economics, education, and the family have played in pushing for greater racial and social equality in the region. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7820 International Migration Cr. 3**

Offers a comprehensive overview of the key current theoretical and empirical debates in the study of international migration. The goal is to explore the possibilities of a comparative (historical and cross-national) research program in the field, linking North America, European and other global experiences of migration. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7830 Seminar in Political Sociology Cr. 3**

At its core, the field of political sociology seeks to understand the societal determination of political processes, outcomes, and institutions. Political sociology also concerns relationships between states and civil societies, how best to conceptualize power and understand its workings. In this course, we will study how states form and transform society through interventions such as membership and citizenship laws, social welfare policies, and inclusion and exclusion of particular groups in political processes. Students will learn about the structure of democracy and the ways in which civil society groups influence and contest the state through social movements, formal and informal institutions, and the media which may lead to policy change, regime transitions, wars, and revolutions. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7840 Topics in the Sociology of Race and Ethnicity Cr. 3**

Sociological scholarship in the area of race and ethnicity is robust and varied both methodologically and topically. The diversity of scholarship in this area is expected given the range of micro-, meso-, and macro-level implications that are associated with individuals' self-identified and socially ascribed race and ethnicity. In recognition of such diversity this course will offer students the opportunity to acquire in-depth knowledge of the methodological, empirical, and theoretical literature related to a specific topics that are located within the broad area of sociology of race and ethnicity. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**SOC 7860 Global Social Inequality Cr. 3**

This course examines social inequality around the world and its relationship to globalization, which refers to the increasing connectedness of social and economic life across borders. Global social inequality is the systematic differences in the distribution of resources among people living in different areas of the globe. Using a critical lens of intersectionality to understand the nuances of global social inequality, we consider the following: (1) What kinds of inequalities exist? (2) Why do they exist? (3) How does gender, race/ethnicity, class, and sexuality play out in a global context? We start from the premise that these are more than individual characteristics; they are socially constructed systems of inequality that intertwine with each other, and with other social inequalities like age, ability, and nationality. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7990 Directed Study Cr. 1-6**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**SOC 7995 Directed Teaching in Sociology Cr. 1**

Students work under the direction of a member of the graduate faculty; planning lectures, handling class discussions, preparing exams, and grading introductory sociology students. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 7999 Master's Essay Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**SOC 8200 Mixed Methods Cr. 3**

Exposes students to research on mixed methods including methodologies, research design, and empirical applications in published work. Half of the course will focus on learning about the most commonly utilized qualitative and quantitative methodologies and the other half will focus on mixed methods approaches. Offered Intermittently.

**Prerequisite:** SOC 6280 with a minimum grade of B and SOC 7200 with a minimum grade of B and SOC 7260 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 8250 Longitudinal Data Analysis Cr. 3**

Examines common models of longitudinal data analysis in sociology, which are also commonly used within the broader social sciences. Key topics covered in this class include linear panel analysis, event history analysis, and the analysis of repeated cross-sectional data. Offered Intermittently.

**Prerequisite:** SOC 6280 with a minimum grade of B and SOC 7200 with a minimum grade of B and SOC 7290 with a minimum grade of B

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 8700 Seminar in Social Inequality Cr. 3**

Sociological framework for analyzing several inequalities in contemporary U.S. society. Race, class, and gender as individual topics and as they intersect in society; inequalities in personal life experience. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 8710 Advanced Seminar in Race/Ethnicity Cr. 3**

Topics include advanced theoretical and methodological debates in the sociology of race and ethnicity, an analysis of the social construction of race, and the structural implications of subordination, discrimination and privilege. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 8720 Advanced Seminar in Sex/Gender Cr. 3**

Topics include advanced theoretical and methodological debates in the sociology of sex and gender, an analysis of the social construction of gender, and the structural implications of subordination, discrimination and privilege. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 8730 Demography of Aging Cr. 3**

This seminar is focused on the demography of aging from an interdisciplinary health perspective. Population aging is expected to be one of the major demographic changes affecting social institutions throughout the world in the 21st century. To develop a clear understanding of the patterns, causes, and consequences of population aging, students will be introduced to theoretical and empirical population health and aging research from fields of demography, sociology, economics, epidemiology, psychology, and public health. Topics covered include basic foundations of population aging, including historical and macro-patterns as well as trends in mortality, health, and disability. Attention will also be given to possible mechanisms and disparities underlying these population patterns of health and aging. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 8801 Topics in the Sociology of Labor Cr. 3**

Seminar: advanced topics in sociology of work and labor. Topics will include: social nature of work, transformation of the labor process, forms of control in the workplace, resistance, gender and race in the workplace. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**SOC 8802 Topics in Urban Sociology Cr. 3**

Seminar: topics in the area; may include: urban enclaves, suburbanization, world cities, gentrification, integration/segregation, urban environmentalism, health in cities. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**SOC 8803 Globalization, Gender, and Work Transformations Cr. 3**

Reviews recent scholarship on globalization, gender and work transformation in the global north and south. Putting gender at the center of globalization discourses highlights the historical and cultural variability of gender relations intersecting with class, race and nationality, and highlights the impact of restructuring on workers, organizations and institutions at the local, national and regional levels. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 8805 Sociology of Urban and Labor Studies Cr. 3**

Graduate seminar which provides the theoretical foundations of the area of urban and labor sociology. Topics include: the labor process, labor markets, labor movements, globalization and work, race and inequality in urban contexts, power and politics, and migration. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**SOC 8990 Directed Study Cr. 2-6**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**SOC 8999 Master's Thesis Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**SOC 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**SOC 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SOC 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SOC 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SOC 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SOC 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## SPA - Spanish

**SPA 1010 Elementary Spanish I Cr. 4**

Introduction to the Spanish language and Hispanic culture through interactive and communicative reading, writing, listening and speaking activities to develop language and cultural proficiency. No experience with Spanish is needed. Offered Every Term.

**Fees:** \$5

**SPA 1020 Elementary Spanish II Cr. 4**

Continuing study of the Spanish language and Hispanic culture through interactive and communicative reading, writing, listening and speaking activities to develop language and cultural proficiency. Offered Every Term.

**Prerequisites:** SPA 1010 with a minimum grade of C-

**Fees:** \$5

**SPA 1060 Elementary Spanish I and II Cr. 6**

Designed for students with previous experience with Spanish or another Romance language who would like an abbreviated review before continuing their studies. The first third of the semester is an accelerated review of SPA 1010; the remainder of the semester covers SPA 1020 coursework. Offered Every Term.

**Fees:** \$5

**SPA 2010 Intermediate Spanish Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Continuing study of the Spanish language and Hispanic culture through interactive and communicative reading, writing, listening and speaking activities to develop language and cultural proficiency. Completion of this course fulfills the General Education requirement for foreign language and culture. Offered Every Term.

**Prerequisites:** SPA 1020 with a minimum grade of C- or SPA 1060 with a minimum grade of C-

**SPA 2025 Cultural Connections, Grammar and Composition I Cr. 3**

Cultural readings and situations to continue to improve ability to speak, read, write and listen in the Spanish language. Offered Every Term.

**Prerequisites:** SPA 2010 with a minimum grade of C

**SPA 2400 Chicano/a Literature and Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Diversity Equity Incl Inquiry, Global Learning Inquiry  
Examination of Chicano/a literature. Themes and figures in a social and historical context. Offered Every Other Year.

**Equivalent:** LAS 2100

**SPA 2500 Puerto Rican Literature and Culture Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Civ and Societies (CLAS only), Diversity Equity Incl Inquiry  
Examination of Puerto Rican literature. Themes and figures in a social and historical context. Offered Every Other Year.

**Equivalent:** LAS 2110

**SPA 2700 Anguish and Commitment: European Existentialist Literature Cr. 3-4**

**Satisfies General Education Requirement:** Cultural Inquiry, Philosophy Letters

A team-taught interdisciplinary study in English of representative works by European existentialist writers: Dostoevsky, Hesse, Kafka, Pirandello, Sartre, Camus and Unamuno. Offered Every Other Year.

**Equivalent:** FRE 2700, GER 2700, ITA 2700

**SPA 3025 Cultural Connections, Grammar and Composition II Cr. 3**

Cultural readings and situations to continue to improve ability to speak, read, write and listen in the Spanish language, with an emphasis on vocabulary building and critical thinking. Offered Every Term.

**Prerequisites:** SPA 2025 with a minimum grade of C



**SPA 3040 Spanish for Business and the Legal Professions Cr. 3**

Commercial Spanish for basic business, legal and banking transactions and correspondence; terminology used in banking, commerce, accounting and marketing; emphasis on translation and format of commercial documents and letters. Offered Yearly.

**Prerequisites:** SPA 2025 with a minimum grade of C

**SPA 3050 Spanish for the Health Care Profession Cr. 3**

General review of pertinent grammar and specific vocabulary groups relating to specific tasks in the health care professions. Discussions leading to cultural competencies. Exploration of cultural and social factors for communicating with Spanish-speaking patients. Offered Yearly.

**Prerequisites:** SPA 2025 with a minimum grade of C

**SPA 3200 Conversation Cr. 3**

Informal class conversations, debates and oral reports to reinforce grammatical principles and to improve pronunciation through practice and imitation. Offered Yearly.

**Prerequisites:** SPA 3025 with a minimum grade of C

**SPA 3300 Introduction to Cultural and Literary Analysis Cr. 3**

Discussion of literary and cultural readings from Spain and Spanish America; vocabulary building; speaking and reading emphasized. Offered Every Term.

**Prerequisites:** SPA 3025 with a minimum grade of C or SPA 3100 with a minimum grade of C

**SPA 3800 Spanish for Heritage Learners Cr. 3**

Review of grammar and composition for Spanish heritage learners. Conducted entirely in Spanish. Offered Intermittently.

**Prerequisites:** SPA 2025 with a minimum grade of C

**Equivalent:** LAS 3800

**SPA 4610 Introduction to Early Modern Spanish Literature Cr. 3**

Spanish literature from the Renaissance to 1700. Offered Yearly.

**Prerequisites:** SPA 3300 with a minimum grade of C

**SPA 4620 Introduction to Modern and Contemporary Spanish Literature Cr. 3**

Spanish literature from 1700 to the present. Offered Yearly.

**Prerequisites:** SPA 3300 with a minimum grade of C

**SPA 4630 Introduction to Colonial Latin American Literature Cr. 3**

A historically and culturally situated introduction to the literature of Early Latin America. Offered Yearly.

**Prerequisites:** SPA 3300 with a minimum grade of C

**SPA 4640 Introduction to Modern and Contemporary Latin American Literature Cr. 3**

Literature in the twentieth and twenty-first century. Offered Every Other Year.

**Prerequisites:** SPA 3300 with a minimum grade of C

**SPA 5000 Minor Language Practicum Cr. 3**

Controlled application of active language skills for students electing a Ph.D. minor in Spanish. No degree credit toward Ph.D. Offered for graduate credit only. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**SPA 5100 Advanced Composition Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Study and utilization of Spanish in written form: colloquial usage, literary Spanish, commercial Spanish, idiomatic expressions. Brief compositions and translation exercises. Conducted entirely in Spanish. Offered Yearly.

**Prerequisites:** SPA 3025 with a minimum grade of C

**SPA 5200 Spanish Phonetics Cr. 3**

A systematic study of Spanish sounds; conducted in Spanish. Offered Yearly.

**Prerequisites:** SPA 3025 with a minimum grade of C

**SPA 5300 Advanced Grammar and Stylistics Cr. 3**

Intensive study of grammar and syntax. Free composition and conversation. Conducted in Spanish. Offered Every Other Year.

**Prerequisites:** SPA 5100 with a minimum grade of C or SPA 3025 with a minimum grade of C

**SPA 5400 Introduction to Professional and Literary Translation Cr. 3**

Introduction to the practice and principles of translation, both from English to Spanish and Spanish to English, for intermediate to advanced Spanish students. Practice in translating: literary works, legal and medical documents, commercial advertisements, and other texts, while becoming familiar with the history and aspects of the theory of translation. Students will become aware of the importance of translation in areas such as cultural diplomacy, literary studies, law, business and medicine. Offered Every Other Year.

**Prerequisites:** SPA 3025 with a minimum grade of C

**SPA 5550 Spanish Culture and Its Tradition Cr. 3**

Spain's cultural history: painting, sculpture, architecture and music, through films, records, newspapers, and other texts. Offered Every Other Year.

**Prerequisites:** SPA 3300 with a minimum grade of C

**SPA 5560 Spanish American Cultures and their Traditions Cr. 3**

Spanish America before and after the discovery of the New World. Art, music, customs, contemporary institutions, through films, records, newspapers, gallery visit to Detroit Institute of Art, and the text. Offered Every Other Year.

**Prerequisites:** SPA 3300 with a minimum grade of C

**Equivalent:** LAS 5560

**SPA 5570 Topics in Hispanic Culture or Language Cr. 3**

Specific themes, genres, movements or periods. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 5600 Advanced Conversation Cr. 3**

Development of advanced conversation skills for Spanish majors and minors. Students will learn strategies to effectively engage in conversations, discussions, debates, and oral presentations. The course is also designed to increase students' awareness of current cultural processes in the Hispanic world through the oral discussion and analysis of readings, cinema, digital media, and other forms of cultural production. Offered Every Other Year.

**Prerequisites:** SPA 3300 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**SPA 5990 Directed Study Cr. 1-4**

Offered Every Term.

**Repeatable for 8 Credits**

**SPA 5999 Internship in Spanish Cr. 3**

Internships allow students to apply the knowledge they have acquired through the Program and to gain practical experience in their scholarly and professional areas of interest. An internship can also allow students to explore possible areas in which they would like to pursue a career. Offered Every Term.

**Prerequisite:** SPA 3025 with a minimum grade of C-

**SPA 6400 Introduction to Hispanic Linguistics Cr. 3**

Principles of linguistics and their application to Spanish. Offered Every Other Year.

**Prerequisite:** SPA 5200 with a minimum grade of C

**SPA 6410 Spanish Medieval Literature: Origins to 1500 Cr. 3**

Main currents and masterworks of Spanish literature from its origins to 1500. (Formerly SPA 6500.) Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6420 Early Modern Spanish Studies Cr. 3**

Literary genres of the early modern period (poetry and narrative: picaresque, pastoral, morisco, and chivalric). Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6440 Spanish Literature of the Eighteenth Century Cr. 3**

Literature of the Spanish Enlightenment; major works and literary trends and movements in the Spanish eighteenth century up to Romanticism. (Formerly SPA 6520.) Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6450 Spanish Romanticism Cr. 3**

Origins and development of Romanticism in Spain: theatre, poetry, costumbrismo, and other narrative. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6470 The Spanish Novel of the Twentieth Century Cr. 3**

Novelists of the twentieth century, including those of the Silver Age (1900-1936) and those associated with Tremendismo, Social Realism, and the contemporary experimental novel. (Formerly SPA 6993.) Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6490 Spanish Poetry of the Nineteenth and Twentieth Centuries Cr. 3**

Representative figures and trends in Modern and contemporary Spanish poetry. Post-Romanticism, Symbolism, the Silver Age (1900-1936), and contemporary poetry. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6560 Cervantes Cr. 3**

A detailed study of Don Quixote. Other short works of Cervantes. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6570 The Comedia Cr. 3**

Analysis of plays by Lope de Vega, Tirso de Molina, Calderon, Maria de Zayas and other dramatists of Spain's Golden Age. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6590 Genres and Topics in Peninsular Spanish Literature Cr. 3**

Topics such as twentieth-century Spanish theatre, the Picaresque novel, and eighteenth-century Spanish theatre, to be announced in Schedule of Classes. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**Repeatable for 9 Credits**

**SPA 6600 Colonial Latin American Studies Cr. 3**

The writing of Colonial Latin America. Cultural encounter and negotiation seen through literature, history and the arts. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6610 Latin American Novel to 1900 Cr. 3**

Development of the Latin American novel in the 19th century. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6620 Latin American Novel in the 20th and 21st Centuries Cr. 3**

Roots of the modern novel in Spanish America; its stages of evolution through the vanguard period into the contemporary stage, with emphasis on representative figures such as Carpentier, Cortazar, and Garcia Marquez. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6630 Spanish American Poetry Cr. 3**

Major figures of the twentieth century and their texts, from the Vanguard period to contemporary poetry. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6690 Genres and Topics in Spanish American Literature Cr. 3**

Topics in the literature of Spanish America, such as the short story or theatre, to be announced in Schedule of Classes. Offered Every Other Year.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**Repeatable for 9 Credits**

**SPA 6700 Spanish Literature of the Silver Age: 1900-1936 Cr. 3**

Writers of the first three decades of the twentieth century; current narratological theories applied to intertextual maneuvers and philosophical concepts. Offered Intermittently.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 6710 Unamuno's Existential Fiction Cr. 3**

Important novels of Miguel de Unamuno; emphasis on characters and their agonization in a circumscribed area. Offered Intermittently.

**Prerequisites:** SPA 4610 with a minimum grade of C, SPA 4620 with a minimum grade of C, SPA 4630 with a minimum grade of C, or SPA 4640 with a minimum grade of C

**SPA 7010 Introduction to Literary Theory Cr. 3**

Graduate-level introduction to key critical perspectives, theories, problems, and questions that have informed the discussions and analyses of twentieth- and twenty-first-century literary and cultural scholars. Specific theoretical paradigms used to determine the task of textual interpretation, locate the limits of each approach, trace the emergence of subsequent theoretical paradigms, and think about how such theories might or might not be relevant in the study of specific texts. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** FRE 7010, GER 7010, ITA 7010

**SPA 7510 History of the Spanish Language Cr. 3**

Origins, development and linguistic status of the Spanish language in Spain and Spanish America. Offered Every Other Year.

**Prerequisite:** SPA 5200 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SPA 7770 Special Studies in Spanish Literature Cr. 3**

Study of the works of an outstanding writer, a literary genre, or literary trends. Offered Fall, Winter.

**Prerequisites:** SPA 6410-6710 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**SPA 7996 Research Project Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**SPA 7999 Master's Essay Direction Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**SPA 8420 Seminar in Hispanic Linguistics Cr. 3**

Seminar topics will vary according to the principal divisions of Spanish linguistics: phonology, morphology, lexicography, syntax, and dialectology. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** LIN 7320

**Repeatable for 9 Credits**

**SPA 8510 Seminar in the Golden Age Cr. 3**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**SPA 8530 Seminar in Spanish Literature of the Eighteenth and Nineteenth Centuries Cr. 3**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**SPA 8550 Seminar in Spanish Literature of the Twentieth Century Cr. 3**

Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**SPA 8610 Seminar in Spanish American Narrative Cr. 3**

Narrative genres in Spanish America including short story, essay, novel, short novel; development, history, period characterization. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**SPA 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**SPA 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Research in preparation for doctoral dissertation. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**SPA 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SPA 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SPA 9991 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SPA 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SPA 9992 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SPA 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Offered Every Term.

**Prerequisite:** SPA 9993 with a minimum grade of S

**Restriction(s):** Enrollment is limited to Graduate level students.

**SPA 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$416.08

**Repeatable for 0 Credits**

## SSE - Social Studies Education

**SSE 5720 Social Studies Disciplines for Elementary Teachers I Cr. 3**

Students explore the content knowledge and major concepts of American History, Michigan Studies, and Geography to help prepare PK-6 learners to make informed decisions as citizens of a culturally diverse, democratic society and interdependent world. Offered Every Term.

**SSE 6710 Methods and Materials of Instruction in Secondary Social Studies Cr. 3**

Foundations of social studies instruction and curriculum; methods of teaching in middle and senior high school, including the use of state standards in the design of instruction, teaching approaches for the various social studies disciplines, their interdisciplinary application, diversity and appreciation of other cultures. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**SSE 6720 Social Studies Disciplines for Elementary Teachers II Cr. 3**

Students explore the content knowledge and major concepts of Political Science (Civics and Government) and Economics to help prepare PK-6 learners to make informed decisions as citizens of a culturally diverse, democratic society and interdependent world. Offered Fall.

**SSE 6730 New Perspectives in Social Studies Education Cr. 3**

Development of curricular lesson plans, unit plans, and other teaching strategies utilizing current approaches in social studies education. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment limited to students in the College of Education.

## STA - Statistics

**STA 1020 Elementary Statistics Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp Descriptive statistics, correlation and regression, notions in probability, binomial and normal distributions, testing hypothesis. Offered Every Term.

**STA 2210 Probability and Statistics Cr. 4**

**Satisfies General Education Requirement:** Quantitative Experience Comp Basic probability theory (definition of probability, conditional probability, independence, random variables, expectation and variance, normal distribution, law of large numbers, central limit theorem), descriptive statistics (histograms, scatter plots, box plots, mean, variance, quantiles, empirical rule, z-scores), statistical inference (confidence intervals for mean, t-tests, chi-square tests, linear regression, analysis of variance) and data analysis. Offered Every Term.

**Prerequisites:** MAT 1800 with a minimum grade of C-, MAT 2010-2350 with a minimum grade of C-, MAT Permit to Reg ACT/SAT with a test score minimum of 4, or Math Permit to Reg - (L1-L4) with a test score minimum of 4

**STA 5030 Statistical Computing and Data Analysis Cr. 3**

Computational aspect of statistics and data analysis for advanced undergraduate and beginning graduate students. Topics include descriptive statistics, probability distributions, hypothesis testing, ANOVA, linear regression and logistic regression. Data analysis by use of statistical packages such as R, SAS, Python, SPSS or Minitab. Satisfies Society of Actuaries Validation by Educational Experience (VEE) in Applied Statistics for regression component with a B- or better. Offered Fall.

**Prerequisites:** (MAT 2250 with a minimum grade of C- or MAT 2150 with a minimum grade of C-) and (MAT 2210 with a minimum grade of C-, STA 2210 with a minimum grade of C-, MAT 5700 with a minimum grade of C-, BE 2100 with a minimum grade of C-, ECO 5100 with a minimum grade of C-, or PH 3200 with a minimum grade of C-)

**STA 5800 Introduction to Mathematical Statistics Cr. 4**

A one-semester course for senior undergraduate and master's degree students. Introduction to basic mathematical theory of statistics. Topics include survey sampling, estimation theory, data analysis and sample statistics, testing hypothesis, two sample cases, analysis of variance, regression analysis, Bayesian inference. Satisfies Society of Actuaries Validation by Educational Experience (VEE) in Applied Statistics for regression component with a B- or better. Offered Winter.

**Prerequisites:** MAT 5700 with a minimum grade of C- and (MAT 2150 with a minimum grade of C-, MAT 2250 with a minimum grade of C-, or MAT 2350 with a minimum grade of C-)

**STA 5820 Introduction to Data Science Cr. 3**

An applied statistical learning course designed for upper level undergraduate students and graduate students in mathematics and other quantitative fields. Topics include: bias-variance trade-off, regression, classification, cross-validation, bootstrap, model selection, regularization, splines, generalized additive models, tree-based methods, support vector machines, principal component analysis and clustering. Computer implementation will be discussed for each of the methods, and students will run their own data analysis projects. Offered Winter.

**Prerequisite:** STA 5030 with a minimum grade of C or STA 5800 with a minimum grade of C or MAT 5800 with a minimum grade of C

**STA 5830 Applied Time Series Cr. 3**

Time series models, moving average models, autoregressive models, non-stationary models, and more general models; point estimators, confidence intervals, and forecast in the time domain. Statistical analysis in the frequency domain; spectral density and periodogram. Satisfies Society of Actuaries Validation by Educational Experience (VEE) in Applied Statistics for regression component with a B- or better. Offered Intermittently.

**Prerequisites:** (MAT 2250 with a minimum grade of C- or MAT 2150 with a minimum grade of C-) and (MAT 2210 with a minimum grade of C-, STA 2210 with a minimum grade of C-, BE 2100 with a minimum grade of C-, ECO 5100 with a minimum grade of C-, or PH 3200 with a minimum grade of C-)

**STA 6830 Design of Experiments Cr. 3**

Randomized blocks; Latin and Graeco-Latin squares; factorial designs; confounding; split plot; fractional replication; balanced incomplete blocks. Offered Intermittently.

**Prerequisites:** (MAT 2250 with a minimum grade of C- or MAT 2150 with a minimum grade of C-) and (MAT 2210 with a minimum grade of C-, STA 2210 with a minimum grade of C-, BE 2100 with a minimum grade of C-, ECO 5100 with a minimum grade of C-, or PH 3200 with a minimum grade of C-)

**STA 6840 Applied Regression Analysis Cr. 3**

Multiple linear regression; generalized linear models; random effect models; repeated measurements; mixed effect models; non-parametric additive models. Computer implementation using statistical software R; student project on real data analysis. Offered Fall.

**Prerequisites:** STA 5030 with a minimum grade of C- or STA 5800 with a minimum grade of C-

**STA 7800 Data Science and Analytics Practicum Cr. 6**

Apply theoretical knowledge and skills acquired throughout the Data Science and Business Analytics MS program to a challenging project involving real-world business problems/opportunities and data analytics in a reliable, scalable, distributed computing environment for optimal outcomes. Offered Yearly.

**Restriction(s):** Enrollment is limited to students with a major in Advanced Analytics, Data Computing, Data-Driven Business or Statistics; enrollment is limited to Graduate level students.

**Equivalent:** DSA 7500, DSB 7500, DSE 7500

**STA 7810 Advanced Statistics Theory I Cr. 3**

First of two basic courses for Ph.D. students in the Mathematics Department who are interested in statistics. Topics include sample distribution theory, point and interval estimations, optimal estimates, theory of hypothesis testing, and most powerful tests. Offered Every Other Fall.

**Prerequisite:** MAT 5610 with a minimum grade of C and MAT 5700 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**STA 7820 Advanced Statistics Theory II Cr. 3**

Continuation of STA 7810. Topics include regression analysis, linear models, analysis of categorical data, nonparametric statistics, decision theory, and Bayesian inference. Offered Intermittently.

**Prerequisite:** MAT 7810 with a minimum grade of C or STA 7810 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**STA 7870 Topics in Statistics Cr. 3-4**

Selected topics such as statistical estimation theory; theory of statistical hypothesis testing; non-parametric methods in statistics; statistical sequential analysis; statistical multivariate analysis. Topics to be announced in Schedule of Classes. Offered Intermittently.

**Prerequisite:** MAT 7810 with a minimum grade of C or STA 7810 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

## STE - Sustainable Engineering

**STE 5410 Energy, Emissions, Environment (E3) Design Cr. 3**

Provides students the tools to uncover the relation between energy consumption and energy generation and optimize processes to take most advantage of low emitting energy options. Exposes students to design tools and methodologies from a diverse group of sources including US EPA, DOE, EIA, and the latest in emerging research. Offered Fall.

**Equivalent:** AET 5410, CE 5410



**STE 6270 Sustainability Assessment and Management Cr. 3**

Sustainability assessment and management for engineering design and development; theoretical, regulatory, and practical implications; Detroit and global applications. Offered Yearly.

**Equivalent:** CE 6270

## STS - Study Skills

**STS 0900 President M. Roy Wilson Summer Build Program Cr. 0**

Provides an introduction to research for Wayne State University's Summer BUILD program. Elements include university and library navigation, financial literacy, math, english composition, physics, chemistry, biology, bio-chemistry, research topics and methods. Offered Spring/Summer.

## SW - Social Work

**SW 1010 Introduction to Social Work and Social Welfare Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry Survey of selected social welfare programs in the United States; history and development; focus on issues related to poverty and dependence. This course explores issues of fairness and equality in economic, political and social systems, and identifies the values, ethics, and practice principles of the social work profession. Students attend out-of-the-classroom events on campus and in the community to learn from social workers and social justice leaders who are engaging in work with vulnerable and at-risk populations in Detroit. Offered Every Term.

**SW 3010 Social Work Practice Method I Cr. 4**

This is the first in a sequence of four courses (SW 3010, 3020, 4010, and 4020) designed to develop the practice knowledge and skills necessary for BSW students to begin professional social work practice, including a service-learning project and professional skills simulation laboratory. The purpose of this course is to introduce the eight-step planned change process, a problem-solving guide for effecting situational change within the generalist intervention model. This course introduces students to the person-in-environment framework and the urban context, and emphasizes planned change steps one (engagement), five (intervention), and seven (evaluation). The course introduces students to the value, philosophy, and knowledge base considerations of social work practice. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 3020 Social Work Practice Method II Cr. 3**

This is the second course in a four-course sequence (SW 3010, 3020, 4010, and 4020) designed to introduce assessment, the second stage of the planned change process, and reinforces social work-client interactions during the middle and ending phases of social work intervention, the third planned change step. Comparing and contrasting knowledge, skills, and dynamics in the micro level of social work practice with individuals and families. This course includes an interprofessional assignment. Offered Winter.

**Prerequisite:** SW 3010 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 3030 Professional Writing for Social Workers Cr. 2**

Introduces social work students to professional social work writing. Designed to create a foundation for grammar, usage, style, and genre-specific writing for use in all practice settings. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 3110 Diversity, Oppression and Social Justice Cr. 3**

Diverse cultures, family structure, roles, immigration and assimilation experiences of marginalized groups; influence of dominant culture on these groups. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Social Work or Social Work & Social Justice.

**SW 3410 Foundations of Ethics and Values in Social Work Cr. 3**

Beginning course in the principles, values and ethics which underlie the profession of social work. Meaning of concepts and process of thinking about and resolving ethical dilemmas, the promotion of ethical questions, and knowledge of their historical contexts. Critical interpretation and evaluation of philosophical texts, positions, and arguments. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 3510 Human Behavior in the Social Environment Cr. 3**

Ecological systems perspective presented. Knowledge and theories of human development across the life span. Human behavior studied within the context of the social systems in which people live, including families, peer groups, organizations, and communities. Emphasis on how social systems promote and deter human development and the influence of diversity on human development. Offered Fall.

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 3710 Social Welfare and the Social Work Profession: History, Trends and Basic Concepts Cr. 3**

History of social welfare in the United States. Basic concepts of social welfare. The profession of social work in historical perspective. Current trends and issues in social welfare and in the profession of social work. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Social Work or Social Work & Social Justice.

**SW 3810 Research Methods, Data Analysis, and Practice Evaluation I Cr. 3**

Descriptive research methods for social work concepts and skills of problem formulation; research design; description and critical analysis of research studies; integration of descriptive statistics and data analysis within social work context. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 4010 Social Work Group Theory and Practice Cr. 3**

This is the third course in a four-course sequence This is the third course in a four-course sequence (SW 3010, 3020, 4010, and 4020). It builds upon the knowledge, theories, skills, and values learned in the mezzo system level of social work practice related to groups. This includes the use of systems and problem-solving approaches to plan for and apply appropriate social work intervention with emphasis on the utility of varied groups in mezzo practice. This course emphasizes a simulation laboratory approach to develop problem-solving intervention skills in facilitating groups in systems necessary for generalist social work practice. Offered Fall.

**Prerequisites:** SW 3020 with a minimum grade of D- and SW 4998 with a minimum grade of M (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 4020 Social Work Macro Theory and Practice Cr. 3**

This is the final course in a four-course sequence (SW 3010, 3020, 4010, and 4020). The course emphasizes knowledge, theory, and practice skills related to service delivery and generalist planned change process in macro systems. Students will learn a range of practice, assessment, and intervention skills to solve problems in social service organizations, social welfare systems, and communities for the purpose of empowerment, social and economic justice, and social change. Offered Fall, Winter.

**Prerequisites:** SW 4010 with a minimum grade of D- and SW 4998 with a minimum grade of M (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 4441 Practicum Education Seminar I Cr. 1**

Understanding the learning experience through critical reflection on field and course work. Offered Every Term.

**Prerequisites:** SW 4998 with a minimum grade of M (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Social Work.

**SW 4442 Practicum Education Seminar II Cr. 1**

Understanding the learning experience through critical reflection on practicum and course work. Offered Winter, Spring/Summer.

**Prerequisites:** SW 4998 with a minimum grade of M (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Social Work.

**SW 4710 Social Welfare in the United States: Current Programs Cr. 3**

Description and analysis of major social welfare programs in the United States. Overview of the policymaking process and strategies for advocacy for policy change. Offered Fall.

**Prerequisite:** SW 3710 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 4810 Research Methods, Data Analysis, and Practice Evaluation II Cr. 3**

Continuation of S W 3810. Integration of descriptive and inferential statistics and components of quantitative and qualitative designs appropriate for evaluating service delivery and related policy. Offered Fall.

**Prerequisite:** SW 3810 with a minimum grade of D-

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 4990 Directed Study Cr. 1-4**

Individual direction in reading and research on selected topics. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**Repeatable for 4 Credits**

**SW 4991 Special Topics in Social Work Cr. 1-4**

Topics of current interest to be announced in Schedule of Classes . Offered Every Term.

**Repeatable for 4 Credits**

**SW 4997 Integrative Seminar in Social Work Cr. 3**

This capstone course reinforces a person-in-environment framework to assist students in reviewing, analyzing, and integrating their theoretical knowledge with the planned change process and the generalist intervention model at all system levels. Students develop an engagement plan, assessment plan, comprehensive intervention plan, and evaluation plan. Students demonstrate that they have acquired the knowledge, skills, and values needed to be competent and ethical generalist practitioners. Offered Winter, Spring/Summer.

**Prerequisites:** SW 4010 with a minimum grade of D-, SW 4020 with a minimum grade of M (may be taken concurrently), and SW 4998 with a minimum grade of M (may be taken concurrently)

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**SW 4998 Field Practice in Social Work Cr. 5**

The ratio of clock hours to credits is 46 to 1. Field practicum for senior-level students in the BSW program. Field placements assigned by the Director of Field Education. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the Bachelor of Social Work program.

**Fees:** \$35

**Repeatable for 10 Credits**

**SW 5720 Social Services for Older Adults Cr. 3**

Identification, description and analysis of the problems associated with aging; development of social work services to address these needs. Offered Fall, Spring/Summer.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Graduate Certificate, Senior or Post Bachelor.

**SW 5755 Introduction to Child Welfare Cr. 3**

Introduction and overview of child welfare services and practice with focus on a wide range of Issues related to children and youth in care and those in need of protection from abusive and/or neglectful caretakers and environments. Offered Fall, Spring/Summer.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6010 Equitable Partnerships with Families and Communities Cr. 3**

Theory and research-based strategies that support equitable collaboration between professionals and families to best meet the needs of children. Explores family and community contexts as assets for learning. Emphasis on culturally and linguistically responsive approaches to learn about and leverage family strengths and priorities, as well as communication strategies for making shared decisions with families. Offered Fall.

**Equivalent:** ELE 6010, PSY 6010

**SW 6015 Crisis, Disaster and Trauma with a Focus on Adults Cr. 1**

Examination of cross-discipline perspectives providing trauma-informed crisis response services to children and families in the aftermath of a disaster across micro, mezzo, and macro levels. Development and application of skills for conducting screening and assessments, as well as short-term interventions and crisis counseling services with disaster-impacted children and families within an ecological and cultural context. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6020 Trauma-Informed Crisis Response for Disasters: Focus on Children and Families Cr. 1**

Examination of cross-discipline perspectives providing trauma-informed crisis response services to children and families in the aftermath of a disaster across micro, mezzo, and macro levels. Development and application of skills for conducting screening and assessments, as well as short-term interventions and crisis counseling services with disaster-impacted children and families within an ecological and cultural context. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6100 Child Welfare and Social Systems: Context for Case Management Practice Cr. 3**

This course provides a knowledge base for Child Welfare practice within the context of mental health, education, juvenile justice and other social systems with a significant focus on the social problems of domestic violence and substance abuse. Core case management intervention skill sets utilized for effective child welfare practice will be taught. Offered Fall.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6500 Social Work and the Law Cr. 2**

Study of the relationship between law and social work practice. Emphasis on understanding the legal processes, the relationship and interdependence of law and social work practice and the knowledge and skill needed to help integrate law into social work practice. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6535 Youth, Delinquency, and Juvenile Justice Cr. 3**

Provides an in depth understanding of the causes and implications of youth involved in the juvenile justice arena, focusing on assessments and social work interventions in a transcultural, multisystem context. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6540 Effects of Drugs and Alcohol on Physical and Social Functioning Cr. 3**

Types of substances most frequently abused, their effects on physiological, psychological, social and physical functioning, and patterns of use among different age groups and populations. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6551 Behavioral Health and the Criminal/Legal System Cr. 3**

This course is aimed at students who seek competence in forensic behavioral health, particularly within the context of social work practice, policy, and services. The class will build upon the recent neuroscience of criminality, violence, child maltreatment, partner violence, addiction, and related mental disorders. Additionally, relevant theories will be applied to provide a socio-cultural context for understanding the judicial system. Offered Winter.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6555 Social Justice and Health: Implications for Social Work Cr. 3**

This course provides students with the knowledge and skills to assess social determinants of health as upstream factors that impact the lives of vulnerable populations and communities. The course will contextualize "health justice" by focusing on the right to health, health services and health insurance; the social factors that affect individual and community health; economic inequality; and the criminalization of social need. Offered Fall.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6575 Violence Prevention and Intervention Cr. 3**

Addresses the ways that social work intervenes to prevent violent perpetration and reduce the harm associated with victimization by interpersonal violence such as youth violence, stalking, sexual violence, gun violence, relationship violence, bullying, and self-directed violence. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6585 Introduction to International Social Work Cr. 3**

Introduction to global social work practice and international social welfare systems including discussion of global topics such as international adoption, immigrant populations, and human trafficking. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6620 Understanding Suicide Cr. 3**

In this course we will explore the enigma of suicide, covering its many biopsychosocial dimensions including the historical, literary, neurobiological, psychological, social work, sociological, cultural, public health, and personal/subjective. Ecological and systems perspectives will be included. The course will explore an understanding of intervention strategies from different perspectives. Suicide has been studied from each of the above perspectives, and while there is agreement that it is a "multidimensional malaise," bringing these dimensions together has been extremely challenging. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6700 Disabilities in Urban Society: Special Topics Cr. 3**

Topics central to understanding living with intellectual, developmental and or neurodevelopmental disabilities across the life span in an urban society. Implications for persons with disabilities, their families and advocates, and their service providers. Offered for graduate credit only. Offered Fall.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6740 Seminar in Disability Studies: Directed Study Cr. 3**

Integration of theoretical and practical knowledge acquired in Graduate Certificate in Disabilities program within context of the discipline and area of interest of the student. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor; enrollment limited to students in the GC in Disabilities program.

**SW 6750 Practicum in Disabilities: Research Topics Cr. 4**

Supervision and direction of students as they apply their knowledge and skills in an interdisciplinary, service-oriented department. Work with professionals from other disciplines and consumers of disability-related services; development of leadership and teamwork skills. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor; enrollment limited to students in the GC in Disabilities program.

**SW 6810 Lesbian, Gay, Bisexual, Transgender, Queer (LGBTQ) Health and Well-Being Cr. 1**

Applies concepts from multiple frameworks to understand the health inequities of lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals. Offered Winter.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6815 Mind-Body-Spirit Approaches and Social Work Practice Cr. 3**

Explores the historical and cultural roots of mind-body-spirit approaches – often called complementary and alternative medicine, or integrative approaches – in contrast to the philosophical foundation of the western medical model; considers contemporary use and reviews multiple specific approaches; and presents research about their use and effectiveness. Considers application in micro, mezzo and macro social work practice. Offered Winter.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6883 Social Work Practice with Very Young Children and Families Cr. 1**

The relationship between theory, assessment and practice in the field of infant mental health. Course covers interventions for use with infants, toddlers and families, as well as the identification of appropriate interventions based upon the infant and family's needs, cultural histories and capacities. Offered Intermittently.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 6991 Special Topics in Social Work Cr. 1-4**

Topics of current interest to be announced in Schedule of Classes. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate, Senior or Post Bachelor.

**SW 7025 Infant Mental Health: Theory to Practice across Early Childhood Settings Cr. 2**

Theories and research-based information on infant mental health practices applied to various early childhood settings. Emphasis on interdisciplinary, relationship-based interventions aimed to promote development and learning in infants and young children. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7040 Methods of Social Work Practice Cr. 3**

Basic theories and principles of practice including a strengths perspective with diverse individuals and families. Emphasis on basic values, roles, skills of generalist social work practice; and on ecological systems perspective and practice principles with at-risk and oppressed populations. Skills of empowerment to achieve individual and collective social and economic justice. Offered Fall.

**Prerequisites:** SW 7998 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7055 Social Work Practice with Groups Cr. 3**

Ecological systems perspective used to critically assess influence of mezzo systems on human behavior and their consistency with social values and ethics. Use of strengths perspective with diverse groups within generalist practice. Group types, process, dynamics, leadership. Planning of groups, interventions, social and economic justice. Offered Winter, Spring/Summer.

**Prerequisites:** SW 7998 (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7065 Generalist Macro Theory and Practice Cr. 3**

Ecological systems perspective used to critically assess influence of macro system on human behavior and their consistency with social values and ethics. Generalist practice and strengths perspective. Practice with diverse communities and organizations, particularly at-risk populations. Needs assessment skills; promotion of macro change and social and economic justice in an urban context. Offered Winter.

**Prerequisites:** SW 7040 with a minimum grade of C and SW 7998 with a minimum grade of M (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7085 Social Work Leadership Strategies Cr. 3**

Leadership theories, applications and skill development. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7095 Social Entrepreneurship Cr. 3**

Social entrepreneurs are change agents who challenge the status quo by using social enterprise and social innovation to address protracted social problems. This course is designed for students who want to explore social enterprise start-ups, as well as those students who are just curious about the field and want to learn more about entrepreneurship and explore career opportunities. Students will learn the requisite knowledge and skills to develop their own business feasibility plan that explores starting a new social venture, nonprofit or commercial enterprise. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7115 Special Topics: Interprofessional Education Cr. 2**

This interprofessional course is for health professional student learners in the areas of advanced practice. The course allows health professional students to learn about, from and with each other, how each discipline contributes to the healthcare team, the importance of effective communication, the role of team collaboration and preparing health care professionals for collaborative practice with a focus on clinical decision making in interdisciplinary teams. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate, Medical or Professional level students.

**Equivalent:** MD4 8115, NUR 7115, PAS 7115, PPR 7115



**SW 7140 Biomedical Components of Substance Use and Addiction Cr. 3**

An examination of the bio-psychosocial aspects of substance use, addiction and recovery. Provides a broad scientific perspective on different classes of drugs and misused substances. Focuses on understanding brain anatomy and mechanisms of action in the brain, genetic factors related to substance use and addiction, physiological effects of alcohol and drug misuse, and pharmacological interventions for recovery. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7150 Health Disparities and Substance Use Cr. 3**

An introduction to health disparity frameworks and an overview of the unique problems and needs of diverse populations who misuse alcohol, tobacco and other drugs. Focuses on the application of culturally sensitive intervention and prevention strategies. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7160 DSM in Clinical Social Work Practice Cr. 3**

Reviews the classification, epidemiology, etiology and course of a range of mental and behavioral disorders across the life span. Emphasizes the critical analysis of existing and emerging theory and provides guidelines for the critical application and limitations of the DSM diagnostic assessment and classification system of mental and behavioral disorders in clinical social work practice. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7560 Lifespan Development in the Social Context Cr. 3**

An examination of theories of human development and behavior and development across the lifespan through the lens of an ecological systems perspective within the context of how social systems including families, peer groups, organizations, communities and culture promote and deter human development. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7680 Human Rights, Social Justice, and Diversity in an Urban Context Cr. 3**

Introduces concepts of human rights and social justice as foundational to social work practice. Offers historical and contemporary perspective of the social work profession and its role in promoting human rights and social, economic, and environmental justice. Examines theory and perspectives on the dynamics of oppression, conflict, and social change from a social work perspective. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7700 Trauma-Informed Child Welfare Practice Cr. 3**

Introduces students to the core concepts informing evidence-based assessment and intervention for traumatized children and adolescents who are in the child welfare system. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7720 Social Policy and Advocacy Cr. 3**

Historical development of social welfare viewed dynamically as a function of social, economic, political and cultural transitions. Evolution of professional social work. Framework of analysis for social welfare policies, programs and agencies. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7770 Palliative Care and Elder Law Cr. 3**

Overview of palliative and hospice care, fundamentals of advanced care planning, and local and national laws and policies that concern older adults and their families. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7820 Evidence for Social Work Practice Cr. 3**

Examination of the basic concepts and methods of scientific inquiry used to build knowledge and evaluate the impact of social work policy and practice. Use of practice knowledge to inform social work research and the use of research findings to inform social work practice is a primary focus of the course. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7840 Community and Organizational Measures Cr. 3**

Knowledge and skills for practice informed research to assess communities and organizations and how measures are used in evaluation. Students will learn basic data analytics and visualization using R. Offered Winter, Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7850 Evaluation Research Cr. 3**

History, conceptual approaches, techniques, and methods in evaluation of professional practice interventions and social work programs. The focus is on relevant application to current practice environment. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7880 Infant/Family Mental Health Assessment Cr. 2**

Using a relationship-based model, assessments of infant and toddler socio-emotional development and parental health is emphasized. Interdisciplinary dialogue about the infant mental health perspective and the impact of culture. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7885 Ethics and Professionalism for Social Work Practice Cr. 3**

Graduate seminar on social work as a profession with ethical considerations. Articulation of professional practice issues in such areas as: competencies, standards, ethics, technology, professional organization, social sanction, autonomy, accountability, inter-professional practice, or social action. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7990 Directed Study Cr. 1-4**

Individual direction in reading and research on selected topics. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**SW 7995 Introduction to Gerontology Cr. 3**

Required introductory course for Graduate Certificate in Gerontology. Multidisciplinary conceptual framework for study of gerontology. Students develop knowledge and skills needed to understand gerontological theory, research, and practice. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 7998 Concentration Field Work for Social Workers I Cr. 4-6**

Practicum of M.S.W. program integrated with courses in social work method, human behavior and the social environment, social welfare organization and policy, and research. Field placements assigned by Coordinator of Field Education. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Social Work degree; enrollment limited to students in the School of Social Work.

**Fees:** \$35

**Repeatable for 12 Credits**

**SW 7999 Master's Research Essay Direction Cr. 1-3**

Two-semester course completed during the Advanced Year of the M.S.W. Program. Essay reflects an original synthesis of an already-published work, demonstrating a thorough understanding and mastery of a sub-area of social work, including the relevance of the problem and adequacy of intervention. Offered Fall, Winter.

**Prerequisites:** SW 7160 with a minimum grade of C (may be taken concurrently) or SW 7840 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment limited to students in the Master of Social Work program; enrollment is limited to Graduate level students.

**Repeatable for 3 Credits**

**SW 8015 Intervention/Program Planning and Grant Writing Cr. 3**

Strategies and approaches to comprehensive program development within the context of community and organizational practice. Offered Winter.

**Prerequisites:** SW 7840 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8046 Community Data Analysis, Interpretation, and Presentation Cr. 3**

This course will prepare social workers to analysis, interpret, and present information about communities, organizations, neighborhoods, and other social groups using empirically substantiated social science techniques. The course will build upon techniques learned in prior foundation research courses and utilize social justice-oriented, community-driven, data analysis, and presentation methods. Instruction will include the use of advanced statistical procedures from a range of software programs such as R/RStudio and open-source geospatial software. Offered Fall.

**Prerequisites:** SW 7840 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8048 Social Action Research and Evaluation Cr. 3**

Concepts, practices, and methodological approaches that are central to empowerment and action-oriented research and evaluation. Students are prepared to intervene into communities, institutions, neighborhoods, and other social groups through the use of empirically substantiated social science techniques. Offered Winter.

**Prerequisites:** SW 7840 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8065 Advanced Systems Theories and Practices Cr. 3**

Applied systems approaches to achieve goals, explore planning, ensure fairness and social justice, and promote diversity. Offered Fall.

**Prerequisites:** SW 7840 with a minimum grade of C and SW 8998 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8075 Theories and Practice of Community Building and Development Cr. 3**

Best practice and theories on community development and engagement. Offered Fall.

**Prerequisites:** (SW 7160 with a minimum grade of C or SW 7840 with a minimum grade of C) and SW 8998 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8085 Theories and Practice of Social Policy and Social Action Cr. 3**

Theoretical frameworks and best practices to engage in social policy and social action. Offered Fall, Winter.

**Prerequisites:** (SW 7160 with a minimum grade of C or SW 7840 with a minimum grade of C) and SW 8998 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8125 Therapeutic Storytelling with Children Cr. 1**

Therapeutic storytelling as a means for expressing and resolving conflicts, disappointments, and anxieties in children. Strategies for assisting children in creating their own story-narratives, focusing on reciprocal, collaborative, and other forms of storytelling. Applications to a variety of childhood disorders and clinical situations. Offered Intermittently.

**Prerequisites:** SW 7055 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in the Master of Social Work or PhD in Social Work programs; enrollment is limited to Graduate level students.

**SW 8180 Social Services in the Schools Cr. 3**

Structure and history of education in relation to social work; implications of current legislation; identification of educational disabilities; programs and services to remediate disabilities and assist students. Offered Yearly.

**Prerequisites:** SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8305 Assessment for Interpersonal Social Work Practice Cr. 3**

Focus on development of knowledge and skills for interpersonal social work practice. Quantitative and qualitative methods for assessment in multiple contexts with an emphasis on how assessment is a part of evidence-based practice. Offered Fall.

**Prerequisites:** SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8315 Integrative Theories and Practice Approaches for Interpersonal Social Work Practice Cr. 3**

Introduces theories and practice approaches commonly used in interpersonal social work practice with individuals, families, and groups. Students will examine theories of change practice approaches derived from four broad categories: Cognitive-behavioral theories, humanistic theories, psychodynamic/developmental theories, and theories of systems and groups. Offered Fall.

**Prerequisites:** SW 7160 with a minimum grade of C

**Corequisite:** SW 8998

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8325 Cognitive Behavioral Interventions in Social Work Practice Cr. 3**

Theoretical knowledge and practice skills for cognitive-behavioral treatment in interpersonal social work practice, focusing on treatment of children, adolescents and adults. Offered Winter.

**Prerequisites:** SW 8315 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8330 Psychosocial Assessment of Children and Youth Cr. 3**

Holistic approach to assessment of children and youth; focus on various aspects of assessment including interpretation of psychological test data; social work administration of behavioral scales; observation; interpretation of drawings; socialized assessment areas such as ADHD and autism. Offered Yearly.

**Prerequisites:** SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8335 Client-Centered Interventions in Social Work Practice Cr. 3**

An introduction to humanistic psychotherapies and techniques for interpersonal social work practice. Includes experiential, existential, relational, and phenomenological approaches in addition to contemporary approaches. Offered Winter.

**Prerequisites:** SW 8315 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8345 Psychodynamic Interventions in Social Work Practice Cr. 3**

Focuses on essential principles for client engagement, assessment and interventions used in psychodynamic psychotherapy. Offered Winter.

**Prerequisites:** SW 8315 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8355 Family Interventions in Social Work Practice Cr. 3**

This course will focus on the theoretical knowledge and practice skills of family systems treatment with a particular emphasis on treatment delivery to families with multiple psychosocial concerns within the urban context. Through various methods of learning (case examples, role plays, class discussions), students will develop practice skills in family system level interventions including assessment and case conceptualizations, interventions, structural family therapy, strategic family interventions, Cognitive Behavioral intervention at the family system level, trauma and the family, and attachment-based family interventions. The course will examine social work values and ethics as they relate to intervening at the family system level. Offered Winter.

**Prerequisites:** SW 8315 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8381 Interpersonal Practice with Children and Adolescents Cr. 3**

This course will examine key evidence-based interventions for children and adolescent mental health and wellbeing. The course offers a structure to develop essential practice skills, such as engagement, treatment planning, and monitoring and evaluation of client outcomes. Students will learn the role of prevention, treatment, recovery, and long-term support to reduce and alleviate distressing symptoms and enhance health and safety of children and adolescents. The course will focus on best practices for internalizing, externalizing, and neurodevelopmental problems, child vulnerabilities and as well as environmental risk and protective factors, including bullying, child maltreatment, and trauma. Students will also learn how issues of diversity, culture, and social justice may impact the quality of therapeutic relationships. Offered Yearly.

**Prerequisites:** SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8550 Social Functioning: Human Sexuality Cr. 2**

Human sexuality as it affects individuals in their relationships to others in terms of development, orientation and dysfunction. Offered Intermittently.

**Prerequisites:** SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8570 Dynamics and Intervention in Family Violence Cr. 3**

Examination of child abuse, partner violence, and elder abuse; theories of causality; dynamics and effects on social functioning. Social work practice methods in family violence. Offered Intermittently.

**Prerequisites:** SW 7055 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8580 Impact of Health and Disease on Social Functioning: Implications for Social Work Practice Cr. 3**

Study of biological, psychological, social, and environmental factors which influence health; social work interventions for at-risk populations in health care. Offered Intermittently.

**Prerequisites:** SW 7055 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8585 Advanced Interpersonal Practice in Trauma and PTSD Cr. 3**

Examination of the major trauma therapy models and theories for advanced interpersonal social work practice across micro, mezzo, and macro levels. Advanced application of theories and intervention models for working with trauma exposed individuals and those with trauma related disorders across the life span and within an ecological and cultural context. Offered Intermittently.

**Prerequisites:** SW 7160 with a minimum grade of C or SW 7840 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8620 Interpersonal Practice with Couples Cr. 2**

Application of interpersonal practice theories in couples therapy utilizing behavioral and social science content in relation to marriage and committed relationships, to the functional and dysfunctional aspects of marital and couple relationships, and their effects on the couple and other affected family members. Offered Intermittently.

**Prerequisites:** SW 7055 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8690 Interpersonal Practice in Substance Use Cr. 3**

Application of interpersonal practice theories to social work interventions with substance abuse related problems; procedures and strategies for assessment and planning; methods of intervention with individuals, families, and groups; prevention and education. Offered Yearly.

**Prerequisites:** SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8710 Ethical Issues in Interpersonal Practice Cr. 2**

Graduate seminar on social work as a profession. Articulation of professional practice issues in such areas as: competencies, standards, professional organization, social sanction, ethics, autonomy, accountability, inter-professional practice, social action. Offered Yearly.

**Prerequisites:** SW 7055 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8770 Advanced Policy Analysis Cr. 3**

Students have the opportunity to conduct a policy analysis in an area of interest (e.g., welfare reform, corrections, homelessness, health, domestic violence) and prepare policy documents to communicate analysis findings to key stakeholders and policy makers. Offered Winter.

**Prerequisites:** SW 7160 with a minimum grade of C or SW 7840 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8771 Advanced Policy Analysis in Aging Cr. 3**

This course builds on policy practice content presented in the generalist social work curriculum, focusing on policy that affects programs and services for older adults. Students conduct a policy analysis in an area pertinent to older adults (e.g., retirement, community-based services, long-term care, Medicare, elder abuse and neglect, age-friendly communities) and prepare policy documents to communicate analysis findings to key stakeholders and policy makers. Offered Winter, Spring/Summer.

**Prerequisites:** SW 7840 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8772 Advanced Policy Analysis in Child and Family Wellbeing Cr. 3**

This course builds on the content gained in the generalist social work curriculum related to policy practice. It focuses on policy that affects programs and services for children and families. Students have the opportunity to conduct a policy analysis in an area pertinent to children and families (e.g., child welfare, immigration, poverty, workforce participation for parents, early childhood development, educational access, juvenile justice, school-to-prison pipeline, bullying, etc.) and prepare policy documents to communicate analysis findings to key stakeholders and policy makers. Offered Winter, Spring/Summer.

**Prerequisites:** SW 7840 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8773 Advanced Policy Analysis in Mental Health and Substance Use Cr. 3**

This course builds on the content gained in the generalist social work curriculum related to policy practice. It focuses on policy that affects programs and services for people with mental health and substance use disorders. Students have the opportunity to conduct a policy analysis in an area pertinent to people with mental health and substance use disorders and prepare policy documents to communicate analysis findings to key stakeholders and policy makers. Offered Winter, Spring/Summer.

**Prerequisites:** SW 7840 with a minimum grade of C or SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8860 Grief and Loss Issues in Social Work Practice Cr. 3**

Knowledge and skills needed to provide social work services to individuals, groups and families coping with a range of loss experiences, including those around death, dying and bereavement. Offered Fall, Winter.

**Prerequisites:** SW 7160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8880 Infant Mental Health Practice Cr. 3**

Advanced knowledge and skills in theory, assessment and practice in the field of infant mental health with emphasis on evidence-based practices. Offered Winter.

**Prerequisite:** SW 7025 with a minimum grade of C or SW 7880 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8883 Infant Mental Health Seminar I Cr. 2**

Understanding and integration of knowledge and skills developed through courses and field placement experiences focused on infant mental health. Offered Fall.

**Prerequisites:** SW 8998 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to students with a major in Dual Title Infant Mental Hlth; enrollment is limited to Graduate level students; enrollment limited to students in a Doctor of Philosophy or Master of Social Work degrees; enrollment limited to students in the School of Social Work.

**SW 8884 Infant Mental Health Seminar II Cr. 2**

Supports Infant Mental Health Dual-Title students in the understanding and integration of knowledge and skills developed through courses and field placement experiences focused on infant mental health. Offered Winter.

**Prerequisites:** SW 8883 with a minimum grade of M and SW 8998 with a minimum grade of M (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8991 Advanced Special Topics in Social Work Cr. 1-4**

Topics of current interest for students in advanced year of M.S.W. program, Ph.D. program in social work or doctoral programs in related disciplines. Topics to be announced in Schedule of Classes. Offered Every Term.

**Prerequisites:** SW 7055 with a minimum grade of C or SW 7070 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 8996 Group Project Research and Direction Cr. 1-4**

This two-semester course assists students in developing advanced competency in conducting research aimed at advancing social work practice and/or social welfare policy. Small groups of students (3-4) come together to work on an already existing research project with faculty. Project depends on the faculty. Examples of activities include: literature review, data collection, data analysis, and data presentation. The project must be discussed with faculty before registration. Offered Every Term.

**Prerequisites:** SW 7160 with a minimum grade of C (may be taken concurrently) or SW 7840 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 4 Credits**

**SW 8998 Concentration Field Work for Social Workers II Cr. 4-6**

The ratio of clock hours to credits is 56.25 to 1. Practicum of M.S.W. program integrated with courses in social work method, human behavior and the social environment, social welfare organization and policy, and research. Field placements assigned by Coordinator of Field Education. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Social Work degree.

**Fees:** \$35

**Repeatable for 12 Credits**

**SW 8999 Master's Thesis Research and Direction Cr. 1-6**

The master's thesis provides students with the opportunity to conduct a scholarly study and contribute to the knowledge base associated with some aspect of social work theory, practice, or policy. A thesis must be supervised by a faculty member. Students should register for 3 credits in the fall and 3 credits in the winter of their advanced year. Offered Every Term.

**Prerequisites:** SW 7160 with a minimum grade of C (may be taken concurrently) or SW 7840 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**SW 9000 Directed Study: Doctoral Cr. 1-6**

Independent study under guidance of a faculty member. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**SW 9050 Social Work PhD First Year Seminar Cr. 1**

The goal of the first year seminar is to assist students in developing the skills and professional socialization to be successful in doctoral education. The seminar will assist students in engaging in events and personal behaviors to support professional growth to enhance productivity, build professional networks, and maintain work-life balance. Offered Winter.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program.

**SW 9100 Social Statistics and Data Analysis Cr. 3**

Application of univariate and bivariate statistics and analysis of variance to analyze data obtained from social work practice settings. Students learn to formulate appropriate research questions and hypotheses before data collection, to use SPSS to conduct analysis, and to interpret analyses and communicate findings to academics and practitioners. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.



**SW 9160 Knowledge Creation and Theory Development for Social Science Research Cr. 3**

This doctoral-level seminar is designed to introduce students to philosophies of science that are fundamental to the development of knowledge and theory in social science disciplines. Students will leave this course with an understanding of the conceptual nature of theory and the ways theory can be applied in knowledge development. By the end of this course students will have an understanding of the evolution and history of theory development related to social work and social welfare. The course emphasizes critical thinking and understanding of the theoretical and conceptual frameworks that inform scholarly inquiry. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9170 Theories of Problems and Change across the Micro-Macro Continuum Cr. 3**

This doctoral-level seminar is designed to introduce students to theories commonly used in social work research that span the micro-macro continuum. Students will leave this course with an understanding of the underlying concepts and assumptions associated with commonly utilized theories and the ways that these theories have been applied to social work research. In this course students will explore the ways that individual theories understand and define problems, the underlying assumptions of specific theories, and the nature of change as defined by each theory. By the end of the semester students will be able to design a multi-level research project to address a social science problem utilizing theories that span the micro-macro continuum. Offered Every Other Winter.

**Prerequisite:** SW 9160 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9210 Theories for Practice and Research with Individuals Cr. 3**

Major theoretical systems currently used in clinical social work practices presently used with individuals, examined from six vantage points: model origin; conceptual framework; view of person-in-environment; philosophy of treatment; model effectiveness; practice controversies. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9220 Theories for Practice and Research with Groups and Families Cr. 3**

Theories, models and perspectives guiding social work practice with families. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9230 Theories for Practice and Research with Communities and Organizations Cr. 3**

Practice theory at the macro level. Two perspectives: how macro serves as a context of social work practice at levels of policy, community, organization; and theories of practice with macro systems. How a scholar imparts content and undertakes research at these levels. Offered Yearly.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9240 Social Work Education Cr. 3**

Standards, trends and issues of contemporary and future social work education. Critical analysis of articulation among bachelor's, master's, doctoral education. Emphasis on course development, designing effective learning experiences. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program.

**SW 9260 Current and Historical Trends in US Social Welfare Policy Cr. 3**

Critical analysis in order to understand policy contexts that frame contemporary social work problems and practice. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9300 Applied Regression Analysis and Generalized Linear Models Cr. 3**

Classic regression models, generalized linear models, including weighted least-squares, hierarchical linear models, logistic regression. Using SPSS to analyze social work practice data; interpretation of findings; communication of findings to scholars and practitioners. Offered Yearly.

**Prerequisite:** SW 9100 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9400 Qualitative Research Methods in Social Work Cr. 3**

Examination of social work practice through case study, action research, and qualitative approaches to knowledge building. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9410 Quantitative Research Methods in Social Work Cr. 3**

Understanding and application of knowledge and skills in quantitative research methods aimed at increasing knowledge for social work practice and social welfare policy; clear, researchable questions; use of appropriate theory; selection of design; drawing of sample; and development of appropriate measures and operations within person-in-environment framework. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9420 Research Practicum Cr. 2-3**

The goal of the research practicum is to provide students with an applied research opportunity with the mentorship of a Social Work faculty member. The student project that is expected to be the outcome of the practicum should be manuscripts and abstracts appropriate for dissemination to a professional audience. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9430 Dissertation Seminar Cr. 1**

Development, presentation and critique of dissertation research questions, in context of social work practice or social welfare policy. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9450 Writing for Publication and Presentation Cr. 1**

The goal of the writing seminar is to strengthen healthy and productive writing habits to facilitate the development, presentation and critique of research, in context of social work practice or social welfare policy. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9500 Advanced Clinical Social Work Theory Cr. 3**

Broader and deeper mastery of several theories of development, personality, behavior, and psychopathology that have contributed to the knowledge base of social work. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9510 Applied Clinical Social Work Practice I Cr. 3**

Structured in part as a didactic seminar and in part as a continuous case conference, this year-long course offers a balanced emphasis on the rational, technical, and ethical aspects of social work treatment and clinical supervision. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9520 Applied Clinical Social Work Practice II Cr. 3**

Structured in part as a didactic seminar and in part as a continuous case conference, this year-long course offers a balanced emphasis on the rational, technical, and ethical aspects of social work treatment and clinical supervision. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9550 Advanced Clinical Practicum I Cr. 2**

Practicum provides students with an intensive clinical placement experience in which they can further refine their clinical skills. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9560 Advanced Clinical Practicum II Cr. 2**

Practicum provides students with an intensive clinical placement experience in which they can further refine their clinical skills. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9650 Preparing for the Job Search Cr. 1**

The goal of the job search seminar is to prepare students for the job market. Although much of the class will focus on the academic job market, other options outside academia will be explored. The seminar will assist students in preparing materials and practicing skills to assist in both searching for job opportunities and preparing for conference interviews and job talks. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**SW 9697 Integrative Seminar in Social Work and Anthropology Cr. 3**

Graduate-level integrative seminar that explores the intersection between social work and anthropology by critically analyzing relevant ethnographic scholarship. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9990 Pre-Doctoral Candidacy Research Cr. 1-8**

Preliminary research relevant to proposed area of dissertation research. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**Repeatable for 12 Credits**

**SW 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 7.5**

Dissertation research of a major social work or social welfare issue or problem. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 7.5**

Dissertation research of a major social work or social welfare issue or problem. Offered Every Term.

**Prerequisite:** SW 9991 with a minimum grade of S

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9993 Doctoral Candidate Status III: Dissertation Research and Direction Cr. 7.5**

Dissertation research of a major social work or social welfare issue or problem. Offered Every Term.

**Prerequisite:** SW 9992 with a minimum grade of S

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9994 Doctoral Candidate Status IV: Dissertation Research and Direction Cr. 7.5**

Dissertation research of a major social work or social welfare issue or problem. Offered Every Term.

**Prerequisite:** SW 9993 with a minimum grade of S

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**SW 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0**

Continuation of dissertation research. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the PhD in Social Work program; enrollment is limited to Graduate level students.

**Fees:** \$416.08

## SWA - Swahili

**SWA 1010 Elementary Swahili I Cr. 4**

Training in pronunciation, aural comprehension, oral and written expression. Supervised laboratory period for part of class preparation. Offered Fall.

**Fees:** \$5

**SWA 1020 Elementary Swahili II Cr. 4**

Continuation of SWA 1010. Offered Winter.

**Prerequisites:** SWA 1010 with a minimum grade of D-

**Fees:** \$5

**SWA 2010 Intermediate Swahili Cr. 4**

**Satisfies General Education Requirement:** Foreign Culture, Global Learning Inquiry

Conversational Swahili and grammar review; reading of Swahili literature. Continuation of SWA 1020. Offered Spring/Summer.

**Prerequisites:** SWA 1020 with a minimum grade of D-

**Fees:** \$5

## SYE - Systems Engineering

**SYE 5470 Creative Problem Solving in Design and Manufacturing Cr. 3**

Concepts of laws of natural development of engineering systems. Algorithm for inventive (creative) problem-solving (AIPS-85). Creative use of physical and geometrical effects in design of mechanical and manufacturing systems. Concepts of strength, stiffness, vibratory effects, reliability in mechanical design. Offered Yearly.

**Equivalent:** IE 5490, ME 5470

**SYE 6490 Introduction to Systems Engineering in Design Cr. 3**

Provides an introduction to the engineering and analysis of human-made systems with an emphasis on the process of bringing systems into being. Includes an introduction to systems sciences and engineering and will follow the engineering process from conceptual systems design through concept selection, concept validation, life-cycle acquisition, life-cycle costing, software development, system architecture, and risk management. Addresses system engineering program evaluation including: evaluation requirements, evaluation of the system engineering organization, and program reporting, feedback, and control. Offered Fall.

**Restriction(s):** Enrollment limited to students in the College of Engineering.

**SYE 6491 Systems Engineering Thinking and Concepting Cr. 3**

This course aims to provide students with an understanding of the engineering approach of systems thinking and concepting. This is the art of looking at connected wholes rather than separate parts of a problem. Knowledge and skills will be developed to use in performing a deep analysis of a problem or opportunity situations where system responses are required. The course will provide an understanding of the essential properties of a systems thinker and the complete aspects of a problem in defining the needs and required functionality, documenting them, designing, and validating the product/system solution accordingly for a successful launch. Offered Yearly.

**SYE 6492 Adaptive Acquisition Cr. 3**

This course aims to provide students with an understanding of the adaptive acquisition process of complex system development. This includes the pathways and transitions to pathways to deliver a product or system and future updates. Students learn how Systems Engineering programs may tailor, combine, and transition between acquisition pathways to deliver system capabilities (including complexity, risk, and urgency) to satisfy user requirements. Offered Yearly.

**Prerequisite:** SYE 6491 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**SYE 7491 Systems Engineering Processes – Early to Mid-Design Cr. 3**

This course aims to provide students with an understanding of the Systems Engineering approach to the engineering and analysis of human-made systems. This course provides students with an emphasis on the process of bringing systems into being from product/system inception into preliminary design. The course provides the systems engineering process operating over primary system life-cycle functions that will be addressed and broken down in detail. The course will then assess a student's proper practical use of the processes and tools. Offered Yearly.

**Prerequisite:** SYE 6491 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**SYE 7492 Systems Engineering Processes – Late to Post-Design Cr. 3**

This course aims to provide students with an understanding of the Systems Engineering approach to the engineering and analysis of human-made systems. This course provides students with an emphasis on the process of bringing systems into being from product/system preliminary design to post design. The course provides the systems engineering process operating over primary system life-cycle functions that will be addressed and broken down in detail. The course will then assess a student's proper practical use of the processes and tools. Offered Yearly.

**Prerequisite:** SYE 6491 with a minimum grade of C and SYE 6492 with a minimum grade of C and SYE 7491 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

**SYE 7495 Systems Engineering Capstone Cr. 3**

This course aims to provide students with a detailed review of Systems Engineering major processes, management, and lifecycle processes. Students will conduct an individual capstone project to create a systems engineering and management plan for a major product/system design and development effort for a commercial or defense program. Offered Yearly.

**Prerequisite:** SYE 6491 with a minimum grade of C and SYE 6492 with a minimum grade of C and SYE 7491 with a minimum grade of C and SYE 7492 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the College of Engineering.

## TED - Teacher Education

**TED 2020 Technology Integration in Teaching Cr. 3**

An introduction to various experiences exploring current technologies used to inform and support instructional strategies and practices, and content pedagogy in K-12 classrooms. Offered Every Term.

**TED 2200 Foundations I: Foundations of Education in Urban Spaces Cr. 2**

An examination of issues surrounding social justice in urban schools and society through the exploration of the historical, political and social trends that influence education. Offered Every Term.

**Corequisite:** TED 2205

**Equivalent:** TED 2250

**TED 2205 Foundations Field Experience Cr. 1**

This course is a school-based clinical experience for students interested in becoming a teacher. This experience includes but is not limited to, relevant classroom observations, collaborating with a cooperating teacher in a PreK through Grade 12 school setting, working with individual and small groups of students, and four face-to-face meetings with a course instructor. This course requires students to attend an off-campus placement, assigned by the Office of Educational Partnerships and Experiences. All students must have a clear background check through CastleBranch prior to being provided their placement information. Students must have their own transportation and may be placed within a 25-mile radius of Wayne State University. Offered Fall, Winter.

**Corequisite:** TED 2200

**TED 2210 Foundations II: Intersections of Culture, Language, Identity & Schooling Cr. 2**

This course is designed to increase students' knowledge and appreciation of the cultural, social, political and economic realities of our complex, pluralistic society in relation to our educational system. Students will examine the historical foundations of U.S. education, with attention to groups who have historically been denied access to equitable educational experiences. This course will examine educational policies, practices, and beliefs underlying inequities in schooling. The principles of multicultural education, culturally responsive pedagogy, universal design and socio-emotional learning will be introduced as frameworks for classroom organization and instructional planning. Offered Every Term.

**Equivalent:** BBE 1005

**TED 2220 Foundations III: Foundations of Inclusive Schooling Cr. 2**

Philosophy and practices of inclusive schooling, including legal and ethical responsibilities of teachers of marginalized learners, history of disability rights movement, inclusive teaching practices, Universal Design for Learning (UDL). Offered Every Term.

**TED 2250 Becoming an Urban Educator Cr. 3**

Examination of issues surrounding social justice in urban schools and society through the exploration of the historical, political, and social trends that influence education. Course includes a 40-hour service learning field experience. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the College of Education.

**TED 2500 Introduction to Asian American Studies Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry

This course will provide an overview of the historical and contemporary experiences of Asian Americans and Asian migrants in the United States. We will examine major themes, including race and racism, exclusion and assimilation, ethnic and pan-ethnic identities and communities, intersectionality and comparative racialization, as well as activism and social movements. We will analyze these themes within the broad dynamics of empires, wars, globalizations, migrations, and the making of the U.S. as a nation-state and a global power. Offered Yearly.

**Equivalent:** ASN 2500

**TED 5100 Professional Engagement, Advocacy, and Instructional Planning Cr. 2**

Identify sources and impact of teaching beliefs, knowledge, and practices. Design curriculum to organize and enact knowledge, experience, and standards. Develop approaches for student engagement for learning and assessment. Analyze strategies of teacher agency and advocacy. Offered Every Term.

**TED 5150 Analysis of Elementary Teaching Cr. 3,5**

**Satisfies General Education Requirement:** Writing Intensive Competency Organization and management of classrooms. Lesson planning, teaching strategies and testing procedures. Work in classroom assigned by both an experienced public school teacher and a University faculty member. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.  
**Fees:** \$29

**TED 5350 Topics in Racial Justice in Education Cr. 3**

Topics, theories, pedagogies, and research methodologies related to racial justice in PK-12 schools and in pre-service and in-service teacher education, including white supremacy, racialization, antiracism, and decolonization. Applications to educational policies, curriculum, instruction, and co-curricular activities that are relevant to racial/ethnic minority students and educators in PK-12 schools. Implications for students and educators from diverse and intersectional perspectives. Offered Every Term.

**Repeatable for 12 Credits**

**TED 5400 Topics in LGBTQ+ Studies in Education Cr. 3**

Topics, theories, and issues related to sexual orientation, gender identity, and gender expression in PK-12 schools and in pre-service and in-service teacher education. Applications to educational policies, curriculum, instruction, and co-curricular activities that are relevant to lesbian, gay, bisexual, transgender, queer, and questioning (LGBTQ+) students and educators in PK-12 schools. Implications for students and educators from diverse and intersectional perspectives. Offered Every Term.

**Repeatable for 12 Credits**

**TED 5650 Pre-Student Teaching Field Experience for Secondary Majors Cr. 5**

Field experience in secondary school settings prior to full-time student teaching. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**TED 5780 Directed Teaching and Conference Cr. 1-12**

Directed teaching in schools at level for which students are preparing for certification. Includes regular conference in which teaching methods in various fields are explored. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**TED 5790 Directed Teaching and Conference for Special Groups Cr. 1-15**

Directed teaching in schools at level for which advanced students are preparing for certification; discussion of educational issues. For students seeking endorsements in special areas; for example: special education, early childhood, art. Students interested in completing general elementary and special education field experiences in the same semester should see advisor for eligibility requirements. Offered Fall, Winter.

**Restriction(s):** Enrollment limited to students in the College of Education.

**Repeatable for 15 Credits**

**TED 5791 Directed Teaching and Conference for Pre-Kindergarten Cr. 6**

This course is a preschool level field experience for students who are working toward the Birth-Kindergarten Endorsement for certification. Offered Yearly.

**Corequisite:** ELE 6080

**Restriction(s):** Enrollment limited to students in the College of Education.

**TED 5792 Directed Teaching and Conference for Early Intervention and Early Childhood Special Education Cr. 6**

Directed teaching in early intervention (EI) and/or early childhood special education (ECSE) for advanced students who are preparing for teaching certification in the Birth-Kindergarten grade band; discussion of educational issues. Offered Yearly.

**TED 5900 Post-Certification Clinical Experience Cr. 1**

This course offers a school-based clinical experience for PK-12 teachers seeking to add an additional content area endorsement (i.e., ESL/BBE, math, social studies, etc.) and/or grade band endorsement (i.e., K-8, 6-12, K-12) to an existing Michigan teaching certification. Experience includes relevant classroom observations; data collection on student learning, instruction, assessment; lesson plan implementation; and collaboration with the course instructor and mentor educators. Offered Every Term.

**Repeatable for 4 Credits**

**TED 6020 Technology Integration in Teaching Cr. 3**

An introduction to various experiences exploring current technologies used to inform and support instructional strategies and practices, and content pedagogy in K-12 classrooms. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TED 6030 Computer Applications in Teaching II Cr. 3**

Use of computing resources to develop problem-solving strategies and multimedia applications for students in specific K-12 curriculum areas. Offered Fall, Winter.

**Prerequisite:** TED 6020

**TED 6140 Local School Curriculum Planning Cr. 1-6**

For classroom teachers and teacher educators. Consideration of local problems in elementary and secondary school programs. Planning for better teaching and learning. Offered Intermittently.

**Repeatable for 12 Credits**

**TED 6200 Foundations I: Foundations of Education in Urban Spaces Cr. 2**

Examines issues surrounding social justice in urban schools and society through the exploration of the historical, political and social trends that influence education. Offered Every Term.

**Corequisite:** TED 6205

**TED 6205 Foundations Field Experience Cr. 1**

This course is a school-based clinical experience for students interested in becoming a teacher. This experience includes but is not limited to, relevant classroom observations, collaborating with a cooperating teacher in a PreK through Grade 12 school setting, working with individual and small groups of students, and four face-to-face meetings with a course instructor. This course requires students to attend an off-campus placement, assigned by the Office of Educational Partnerships and Experiences. All students must have a clear background check through CastleBranch prior to being provided their placement information. Students must have their own transportation and may be placed within a 25-mile radius of Wayne State University. Offered Every Term.

**Corequisite:** TED 6200

**TED 6210 Foundations II: Intersections of Culture, Language, Identity and Schooling Cr. 2**

This course is designed to increase students' knowledge and appreciation of the cultural, social, political and economic realities of our complex, pluralistic society in relation to our educational system. Students will examine the historical foundations of U.S. education, with attention to groups who have historically been denied access to equitable educational experiences. This course will examine educational policies, practices, and beliefs underlying inequities in schooling. The principles of multicultural education, culturally responsive pedagogy, universal design and socio-emotional learning will be introduced as frameworks for classroom organization and instructional planning. Offered Winter.

**TED 6220 Foundations III: Foundations of Inclusive Schooling Cr. 2**

Philosophy and practices of inclusive schooling, including legal and ethical responsibilities of teachers of marginalized learners, history of disability rights movement, inclusive teaching practices, Universal Design for Learning (UDL). Offered Every Term.



**TED 6370 Equity and Inclusion in Diverse Urban Education Settings Cr. 4**  
Clinical based course, using inclusive instructional practices for all students including, but not limited to, students with disabilities, English Language Learners, and special populations such as: at-risk, and gifted and talented in inclusive urban settings. Offered Fall.

**TED 6380 Integrating Content Cr. 1-12**

Current issues and trends related to integrating content areas; theory, methods, materials and strategies. Content areas announced in Schedule of Classes. Offered Yearly.

**Repeatable for 12 Credits**

**TED 7000 Introductory Master's Seminar Cr. 2-3**

Skill development in the three primary areas: information access through the variety of resources available in a university library; comprehension and evaluation of technical literature; employment of APA style in technical writing. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TED 7030 Foundations of Teaching and Learning Cr. 3**

Theoretical foundations guiding classroom teaching and learning with applications to curricular and instructional practices and their implications for the experiences of children of cultural heritages. Offered Every Term.

**Restriction(s):** Enrollment limited to students in a Doctor of Education, Doctor of Philosophy, Education Specialist Cert or Master of Education degrees.

**TED 7060 Inclusive Education, Curriculum and Pedagogy Cr. 3**

This course has two emphases. First, it provides graduate students with foundational knowledge about the philosophy and sociology of inclusive education as it relates to students who are members of marginalized groups. Second, it provides students with opportunities to learn a basic framework for inclusive education, curriculum, and pedagogy. Offered Every Term.

**Restriction(s):** Enrollment limited to students in a Doctor of Education, Doctor of Philosophy, Education Specialist Cert or Master of Education degrees.

**TED 8100 Doctoral Seminar: Thought, Language, Power, Social Interaction and Learning Cr. 3**

Examines the relationships between thought, language, power, and social interaction as they relate to teaching and learning. The seminal works of educational theorists who address these topics will be explored and applied to present day curricula and issues in education. This seminar will introduce socio-cultural theories and theorists and the influence their stances have had and continue to have on education across time and place. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Educational Studies; enrollment is limited to Graduate level students.

**TED 8150 Pro-Seminar I: Introduction to Research in Educational Studies Cr. 1**

Introduction to doctoral research in educational studies including: research and inquiry processes; educational issues and problems addressed by educational studies scholars; and tools of educational research. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major in Educational Studies; enrollment is limited to Graduate level students.

**TED 8200 Doctoral Seminar: Education in Socio-Political Culture Cr. 3**

Investigates educational issues within the social, political, and cultural arena; examines mechanisms, policies, and practices that impact teaching and learning. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Educational Studies; enrollment is limited to Graduate level students.

**TED 8250 Pro-Seminar II: Introduction to Research in Educational Studies Cr. 1**

Introduction to research in educational studies with emphasis on problem identification, literature review, and academic positions for educational researchers. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Educational Studies; enrollment is limited to Graduate level students.

**TED 8270 Seminar: Issues in Curriculum and Instruction Cr. 2-6**

For specialist and doctoral students. Analysis of basic issues in curriculum and instruction and their implications for program: early childhood, K-12, adult curricula. Critique of recent research and development efforts. Application to problems of leadership in school-wide curricular improvements. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**TED 8350 Basic Principles of Curriculum and Instruction Cr. 3**

Theoretical bases of curricular development and instructional innovation. Their application to the tasks of the curriculum maker explored as various education positions are taken and examined. Offered Intermittently.

**Restriction(s):** Enrollment is limited to students with a major in Educational Studies; enrollment is limited to Graduate level students.

**TED 8400 Issues in Urban Education Cr. 3**

Explores urban issues of global, national, and regional importance in the field of curriculum and critical social inquiry from the perspective of those who are often the least served by current educational and social arrangements. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TED 8500 Integrating STEM Content Cr. 3**

Current issues and trends related to integrating STEM content areas; theory, methods, materials, and strategies. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TED 8550 Doctoral Seminar: STEM Education and Research Cr. 3**

Critical analysis of policy, theory, practice, and research in STEM education disciplines; Integrating STEM education deliberation, policymaking, practice, and research; Cultural/social/political and historical/contemporary bases of STEM education; Nodes of intersection of policies, theories, practice, and research as integrated STEM education. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students with a major in Educational Studies; enrollment is limited to Graduate level students.

**TED 9130 Doctoral Seminar in Curriculum and Instruction Cr. 3**

An examination of curriculum theory and concepts that apply to the development of content and instructional strategies relevant to contemporary education. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TED 9620 Doctoral Internship in Curriculum and Instruction Cr. 3-6**

Planned and supervised professional field-based experience relevant to doctoral program and projected profession. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

## THD - Theatre and Dance

**THD 7901 Research Methods in Theatre and Dance Cr. 3**

Principles and methods of research; use of published research as examples in dance and theatre study and practice. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**THD 7951 Foundations of Theatre and Dance Pedagogy Cr. 3**

Historical, philosophical, cultural, and ethical dimensions of teaching and learning in multiple dance and theatre environments. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**THD 8875 Seminar: Research Topics in Theatre and Dance Cr. 3**

In-depth research on selected topics in theatre and dance. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**THD 8951 Arts and Human Development Cr. 3**

Integrated approaches to the arts for early childhood, youth and adolescents, and older adults. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**THD 8961 Artistic Praxis Cr. 3**

Research and analysis of artistic practice leading to informed action; particular emphasis on the role of critical reflection in aesthetic development and evaluation of outcomes. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 6 Credits**

**THD 8965 Principles of Teaching Artistry Cr. 3**

Research-based seminar on aspects of management administration, integrated arts, and assessment in multiple dance and theatre teaching artist environments. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 6 Credits**

## THR - Theatre

**THR 1010 Introduction to the Theatre Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Historical, critical and cultural aspects of theatre and drama discussed relative to play attendance. No credit after THR 1111. Offered Every Term.

**Fees:** \$60

**THR 1030 Introduction to Black Theatre and Performance Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Visual Performing Arts

Origins, development, and current trends with production techniques and problems related to the special area of the drama. Offered Every Term.

**Fees:** \$10

**THR 1041 Musical Theatre Appreciation Cr. 3**

**Satisfies General Education Requirement:** Cultural Inquiry, Visual Performing Arts

Survey of American musical theatre from its multiple historical origins to the present. Development of musical theatre understanding and critical observational skills through focus on the ways in which the genre has emerged through interactions between musical theatre artists and their audiences. Offered Fall, Winter.

**Fees:** \$10

**THR 1111 Fundamentals of Theatre Cr. 3**

Introduction to the aesthetic principles of theatre as an art form: with special focus on the design principles and theatre spaces. Required for theatre majors. No credit after THR 1010. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$10

**THR 1121 Play Analysis Cr. 3**

Reading and structural analysis of plays. Selected nineteenth and twentieth century plays. Offered Winter.

**Fees:** \$10

**THR 1211 Acting I Cr. 3**

An introduction to the vocabulary of the stage, the process of acting, improvisation, and ensemble work. Offered Yearly.

**Fees:** \$25

**THR 1215 Acting II Cr. 3**

Continuation of THR 1040 or THR 1211; scene study, improvisation in development of actor's craft. Offered Yearly.

**Prerequisites:** THR 1040 with a minimum grade of C- or THR 1211 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 1411 Fundamentals of Crafts: Scenery and Costumes Cr. 3**

An introduction to stagecraft techniques and practices used in the creation of scenery and costumes for the performing arts. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$45

**THR 1451 Principles of Makeup Cr. 1**

Fundamentals of theatre makeup. Laboratory projects coordinated with University Theatre productions. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Arts or Bachelor of Fine Arts degrees.

**Fees:** \$30

**THR 1461 Fundamentals of Crafts: Lighting and Stage Management Cr. 3**

An introduction to stagecraft techniques and practices used in the performing arts for lighting, sound, and stage management. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$45

**THR 2130 Stagecraft Cr. 3**

Principles of scenic construction and painting. Types and utilization of stage scenery. Laboratory projects coordinated with University Theatre productions. Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Theatre or Theatre Honors; enrollment limited to students in the BA in Fine Arts or Bachelor of Fine Arts programs; enrollment limited to students in a Bachelor of Arts or Bachelor of Fine Arts degrees.

**Fees:** \$30

**THR 2211 Acting: Scene Study Cr. 3**

Continuation of THR 1211 with concentration on working on a role; breakdown of text into actions, objectives, beats; sensory work through scene work. Offered Every Term.

**Prerequisites:** THR 1211 with a minimum grade of C- or THR 1040 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**THR 2220 Fundamentals of Voice and Movement Cr. 3**

Basic explorations of movement and voice focusing on the experiential study of a variety of movement and vocal techniques in order to expose the student to differing approaches and styles of voice and movement work that are commonly practiced in contemporary theatre. Offered Every Term.

**Prerequisites:** THR 1211 with a minimum grade of C- or THR 1040 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**THR 2221 Stage Movement I Cr. 2**

Introduction to the principles, practices, and exercises in body technique and stage movement. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$50

**THR 2231 Voice Lab I Cr. 2**

Introduction to vocal production. Emphasis on relaxation, breathing techniques, and the production of vocal sounds. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 2251 Musical Theatre Performance I Cr. 3**

Studio course; examining styles of musical theatre performance; applying acting techniques to interpret styles throughout the era of musical theatre. Offered Fall.

**Prerequisite:** THR 1211

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**THR 2301 Introduction to Design for the Theatre Cr. 3**

Methods and materials laboratory course. Practical exercises.

Prerequisite to stage, costume or lighting design; techniques of costume, lighting design; rendering, drafting, perspective, color, and design. Offered Fall.

**Prerequisites:** THR 1010 with a minimum grade of C- or THR 1111 with a minimum grade of C-

**Fees:** \$30

**THR 2580 Fundamentals of Production Practice Cr. 3**

Demonstration and application of principles and skills fundamental to theatre and dance production, specifically focusing on duties required of stagehands and backstage crew. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Dance, Dance Honors, Theatre or Theatre Honors.

**Fees:** \$60

**THR 2581 Theatre Studio - Performance Cr. 1**

Supervised studio in theatre performance requiring participation in department productions. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**Repeatable for 3 Credits**

**THR 2582 Intermediate Production Practice Cr. 3**

Students receive practice in a production setting by working on Theatre and Dance Department productions as a member of a shop crew or in a supporting role as a member of the design or management team for an active production. Offered Fall, Winter.

**Prerequisites:** THR 2580 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**THR 2585 Theatre Studio - Theatre Management Cr. 1**

Supervised studio in theatre management as applied to department productions. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**Repeatable for 3 Credits**

**THR 2611 Stage Management Cr. 3**

Study of activities except acting that take place on stage or backstage during a technical performance and during rehearsal period. Offered Every Term.

**Prerequisites:** THR 1111 with a minimum grade of C- or THR 1010 with a minimum grade of C-

**Fees:** \$20

**THR 2651 Introduction to Life Skills for the Creative Entrepreneur Cr. 3**

**Satisfies General Education Requirement:** Quantitative Experience Comp

An introduction to the quantitative and analytical skills utilized by successful entrepreneurs. Topics include: fund management, financial management, contracts, development, and marketing. This course is intended for all students preparing for a career as an independent entrepreneur, business person, artist, creator, musician, writer, and any others seeking self-determined professional opportunities. Offered Every Term.

**THR 3211 Acting III Cr. 3**

Study and exercise in the fundamentals of the actor's craft. Emphasis on the development of the actor's inner resources as applied to dramatic action, and consideration of basic stage techniques. Offered Fall.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 3215 Acting IV Cr. 3**

Development of the techniques and basic principles of character building. Emphasis on the development of a role through script, exercises and scene work. Offered Winter.

**Prerequisites:** THR 2030 with a minimum grade of C- or THR 3211 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 3221 Stage Movement II Cr. 2**

Continuation of THR 2010 or THR 2221. Emphasis on character movement. Offered Winter.

**Prerequisites:** THR 2010 with a minimum grade of C- or THR 2221 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 3225 Stage Movement III Cr. 2**

Styles of stage movement: Commedia, Moliere, Restoration. Emphasis on period deportment, manners, and dance forms. Offered Fall.

**Prerequisites:** THR 2020 with a minimum grade of C- or THR 3221 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 3231 Voice Lab II Cr. 2**

Continuation of vocal production work and an introduction to consonant sounds. Offered Yearly.

**Prerequisites:** THR 2110 with a minimum grade of C- or THR 2231 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 3235 Voice Lab III Cr. 2**

Continuation of vocal and articulation work and an introduction to rhythm and tempo in the speaking voice. Offered Winter.

**Prerequisites:** THR 2170 with a minimum grade of C- or THR 3231 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 3241 Dance Styles of Musical Theatre Cr. 3**

Tap, jazz and dance of the American musical theatre tradition. Emphasis on skills for performing and auditioning for Broadway and movie musicals. Offered Yearly.

**Fees:** \$25

**Repeatable for 6 Credits**

**THR 3301 Design Skills - Drafting I Cr. 3**

Specific instruction in theatrical drafting techniques, including hand drafting and the use of 2D AutoCAD in the drafting of theatrical scenery and lighting. Offered Fall.

**THR 3303 Design Skills - Drafting II Cr. 3**

Specific instruction in theatrical drafting techniques using the 3 dimensional capabilities of AutoCAD Offered Every Other Winter.

**THR 3315 Entertainment Design - Scenery I Cr. 2**

Through instructor lead group discussions, as well as group and individual projects, this class will focus on the exploration of the theatrical text, and the design process as it relates to scenery. Studio skills, including research, sketching, drafting and model making, will be incorporated into a working process aimed at designing scenery for the theatre. Offered Winter.

**Prerequisite:** THR 3301 with a minimum grade of C-

**THR 3322 Introduction to Costuming Cr. 2**

Introduction to techniques used in costume construction and manipulation. Offered Fall.

**Fees:** \$85

**THR 3325 Entertainment Design - Costume I Cr. 2**

An exploration of the role of costume designer in the contemporary theatre and live entertainment industry. Through hands on, project-based coursework, students will explore the art and history of costume design. Offered Fall.

**THR 3331 Entertainment Design - Lighting I Cr. 2**

An exploration of the role of lighting designer in the contemporary theatre and live entertainment industry. Through hands on, project-based coursework, students will explore the art of lighting design and its various industry applications, including theatre, dance, opera, architecture, themed entertainment, and concert performances. Offered Yearly.

**THR 3341 Design Skills - Digital I Cr. 2**

Students will gain a working knowledge of the fundamental concepts and features needed to master a set of software programs widely used by theatre design practitioners. Focus includes programs within the Adobe Suite - Adobe Photoshop, Illustrator and After Effects - that can become integral tools in the working processes of set, costume, lighting and projection designers. Offered Fall.

**THR 3351 Visual Communication - Scenery and Lighting Cr. 2**

With a focus on visual communication as a primary tool for collaboration, this course covers various techniques, workflows and professional practices used to develop a stage design from initial concept to final design. Offered Winter.

**Prerequisite:** THR 3301 with a minimum grade of C-

**THR 3352 Visual Communication - Costumes Cr. 2**

Helps the student develop those skills needed to design costumes for theatrical productions. We will explore various media and rendering techniques as well as script and character analysis. Elements and principles of design will be taught and applied through numerous rendering assignments. Offered Winter.

**THR 3561 WSU Touring Theatre Cr. 1**

Offered Every Term.

**Repeatable for 6 Credits**

**THR 3581 Advanced Theatre Studio - Performance Cr. 1**

Supervised studio in theatre performance requiring participation in department productions. Written permission of Instructor or academic advisor required. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**Repeatable for 6 Credits**

**THR 3582 Advanced Production Practice: Pre-Production Cr. 2**

Advanced design and management students are assigned roles on collaborative production teams to create original designs and technical solutions for various public performances, including dance concerts, plays, and musicals produced by the Maggie Allesee Department of Theatre and Dance. This course focuses specifically on pre-production portions of the process. Offered Fall, Winter.

**Prerequisites:** THR 2582 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**Repeatable for 4 Credits**

**THR 3583 Advanced Production Practice: Production Cr. 2**

Advanced design and management students are assigned roles on collaborative production teams to create original designs and technical solutions for various public performances, including dance concerts, plays, and musicals produced by the Maggie Allesee Department of Theatre and Dance. This course focuses specifically on production portions of the process. Offered Fall, Winter.

**Prerequisites:** THR 2582 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**Repeatable for 4 Credits**

**THR 3585 Advanced Theatre Studio - Theatre Management Cr. 1**

Supervised studio in theatre management applied to department productions. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**Repeatable for 6 Credits**

**THR 3586 Advanced Theatre Studio - Running Crew Cr. 1**

Supervised laboratory as back stage crew and/or wardrobe crew for department productions. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$70

**Repeatable for 6 Credits**

**THR 3601 Stage Management Studio - Principles Cr. 2**

The principles of stage management from time management to performance management. Offered Fall.



**THR 3603 Stage Management Studio - AEA Contracts Cr. 2**

The study of Actors Equity Association contracts from SPT to Broadway and the history and labor laws impact on these contracts. Offered Intermittently.

**THR 3605 Stage Management Studio - Health and Safety Cr. 2**

An examination of all vital information about health and safety issues affecting the performing arts. Offered Intermittently.

**THR 3651 Principles of Theatre Management Cr. 3**

Introduction to the principles and practices of theatre management. Season selection, advertising, budgeting, marketing and fundraising are among the areas to be covered. Offered Yearly.

**Fees:** \$20

**THR 3671 Theatre Management: Marketing and Public Relations Cr. 3**

Methods and approaches used by Theatre Management professionals to communicate their mission, events, and productions. Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$10

**THR 3675 Theatre Management: Marketing Design and Layout Cr. 3**

Techniques and practices for design and layout specifically addressing the needs in Theatre and Arts Marketing; programs, posters, billboards, brochures, and web pages Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$10

**THR 3681 Theatre Management: Patron Services and Development Cr. 3**

Methods and approaches used by Theatre Management professionals to create and maintain meaningful relationships with patrons and audience. This class will emphasize oral communication skills supported by simple use of practices found in the theatre industry Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$10

**THR 3731 Applied Theatre Studies: Community Possibilities Cr. 3**

Fundamental theory and practical technique of applied theatre work, especially process drama and playbuilding. Focus on community situations including intergenerational dynamics, community health and social work effectiveness, and areas of outreach involvement. Offered Yearly.

**Fees:** \$10

**THR 3735 Applied Theatre Studies: Theatre in Education Cr. 3**

Fundamentals of applied theatre work, especially story drama, process drama, and theatre-in-education (TIE). Focus on the artist as teacher; the visiting artist in the classroom, after-school drama programming, performing as a member of a TIE team. Offered Yearly.

**THR 3738 Applied Theatre Practicum Cr. 1-4**

Supervised students work in schools, with youth programs, and in community service settings, implementing applied theatre projects. Offered Yearly.

**Repeatable for 8 Credits**

**THR 3811 Africana Theatre and Dance: Concepts and Practices Cr. 3**

Exploration of the interdisciplinary and global reach of black performance in theatre and dance; examination of key concepts through the analysis of performance and popular culture with scholarly and creative texts by scholars, activists, and artists from the Black Diaspora. Offered Winter.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$10

**THR 3841 History of Theatre and Drama I Cr. 3**

Comprehensive examination of theatrical and dramatic elements encompassing the historical evolution of theatre from earliest times through the late nineteenth-century, including the art of playwriting, dramaturgical methodologies, theoretical frameworks and critical analyses, the craft of acting, principles of directing, intricacies of design and technology, economic dimensions, and cultural influences. Offered Fall.

**THR 3842 History of Theatre and Drama II Cr. 3**

Continuation of THR 3841. Theatre from English and continental nineteenth century to contemporary European and American theatres. Offered Winter.

**Prerequisites:** THR 3841 with a minimum grade of C- or THR 5841 with a minimum grade of C-

**THR 3990 Directed Study Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to students with a major in Theatre or Theatre Honors.

**Repeatable for 9 Credits**

**THR 4211 Acting V Cr. 3**

Theories and methods of acting verse drama. Offered Fall.

**Prerequisites:** THR 2040 with a minimum grade of C- or THR 3215 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**Repeatable for 6 Credits**

**THR 4221 Stage Movement IV Cr. 2**

Styles of stage movement: Shakespeare. Emphasis on Renaissance deportment, manners, and dance forms. Offered Winter.

**Prerequisites:** THR 3225 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 4231 Voice Lab IV Cr. 2**

Continuation of vocal articulation and vocal music techniques; harmonizing them in performance. Offered Yearly.

**Prerequisites:** THR 3080 with a minimum grade of C- or THR 3235 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre or Theatre Honors; enrollment limited to students in a Bachelor of Fine Arts degree.

**Fees:** \$25

**THR 4271 Acting for the Camera Cr. 3**

Acting technique and practice with an emphasis on developing the technical and emotional adjustments required for success in Film, TV and industry acting. Units include adjusting theatre acting technique for Film and TV; learning to "hit marks" and to understand frame sizes; and developing video auditions. Offered Fall.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Fees:** \$25

**THR 4311 Entertainment Design - Scenery II Cr. 3**

A continuation of Entertainment Design – Scenery I, this course seeks to strengthen and expand the student's design process and presentation skills as they relate to scenery. Through the development and critique of projects that span various genres and styles, students will cultivate a greater facility in conceptualizing an approach to the myriad design challenges in the entertainment industry. Offered Fall.

**Prerequisite:** THR 3315 with a minimum grade of C-

**THR 4315 Entertainment Design - Scenery III Cr. 2**

A continuation of Entertainment Design – Scenery 2, this course seeks to refine and reinforce the student's design process and presentation skills as they relate to scenery. Through the design and critique of projects of their own choosing, students will develop their own unique point of view and aesthetic while solidifying their facility in conceptualization. At this level, students are encouraged to seek internship opportunities outside of the academic setting to bring greater perspective to their training. Offered Winter.

**Prerequisite:** THR 4311 with a minimum grade of C-

**THR 4321 Entertainment Design - Costume II Cr. 2**

A continuation of Entertainment Design - Costume I with particular attention to conceptual design and costume design communication. Offered Fall.

**Prerequisite:** THR 3325 with a minimum grade of C-

**THR 4331 Entertainment Design - Lighting II Cr. 3**

An intermediate practice in the design and execution of lighting for the contemporary theatre and live entertainment industry. Through hands on, project-based coursework, students will explore the art of lighting design and its various industry applications, including plays, musical theatre, opera, and dance. Offered Winter.

**Prerequisites:** THR 5331 with a minimum grade of C-

**THR 4335 Entertainment Design - Lighting III Cr. 3**

An advanced study of the practice of lighting design in the contemporary theatre and live entertainment industry. Through hands on, project-based coursework, students will exercise their craft in the art of lighting design specifically focused on the application of advanced lighting technology to commercial entertainment including large scale musicals, operas, dance, themed entertainment, and architectural lighting applications. Offered Winter.

**Prerequisites:** THR 5331 with a minimum grade of C-

**THR 4342 Design Skills - Digital II Cr. 1**

An advanced study of software that is necessary for the growth of entertainment designers and managers. Students will gain an understanding of industry standard software, while also exploring cutting edge software that might be incorporated into their design and management work in the future. Offered Winter.

**THR 4371 Entertainment Design - Projection Design Cr. 2**

Specialized study in the use of projection and media as an integrated storytelling device in theatre. The course will explore and practice the design skills (conceptualization, research, and storyboarding); building techniques (creating, acquiring, and manipulating visual imagery); and production practices (manipulating cues and playback software) required to develop a comprehensive working process for designing projections for the theatre. Offered Every Other Fall.

**Prerequisite:** THR 3341 with a minimum grade of C-

**THR 4500 Qualitative Research in Dance and Theatre Arts Cr. 3**

A survey of qualitative research design and methodology in dance and theatre arts with particular emphasis on empirical and exploratory research drawn from descriptive, ethnographic, case study, participatory action research, interpretive and critical approaches, among others. Offered Every Other Fall.

**Prerequisites:** AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C  
**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment is limited to students in the Department of Theatre and Dance.

**Equivalent:** DNC 4500

**THR 4601 Stage Management Studio: Event Management Cr. 2**

An examination of the central role of events management in the cultural, tourism and arts industries. Offered Intermittently.

**THR 4603 Stage Management Studio - Commerce of Theatre Cr. 2**

Prepares students with the requisite skills and understanding required to seek employment in the commercial and not-for-profit entertainment industry. Offered Winter.

**THR 4605 Stage Management Studio - Performance Management Cr. 2**

The exploration and development of skills and techniques necessary to manage a wide range of performances. Offered Winter.

**THR 4995 Theatre Capstone: Performance Cr. 3**

Capstone experience for B.F.A. acting students. The course focuses on transitioning into the profession, including: auditioning approaches and techniques; showcase preparation and presentation; and developing a personal professional resume and electronic portfolios. Offered Winter.

**Prerequisite:** THR 4211 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Theatre.

**THR 4996 Theatre Capstone: Design and Technology Cr. 3**

Capstone experience for B.F.A. design tech students. The course focuses on transitioning into the profession, including: auditioning approaches and techniques; showcase preparation and presentation; and developing a personal professional resume and electronic portfolios. Offered Winter.

**Prerequisite:** THR 4211 with a minimum grade of C-

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Theatre.

**THR 4997 Theatre Capstone Experience Cr. 3**

Development of a personal electronic portfolio demonstrating computer proficiency. Offered Winter.

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Theatre or Theatre Honors; enrollment limited to students in the BA in Fine Arts program; enrollment limited to students in a Bachelor of Arts degree.

**THR 4998 Capstone Honors Thesis Cr. 3**

Culminating project for theatre honors students: research for scholarly/creative activity. Offered Spring/Summer.

**Prerequisites:** THR 3410 with a minimum grade of C- (may be taken concurrently), THR 3460 with a minimum grade of C- (may be taken concurrently), THR 3030 with a minimum grade of C- (may be taken concurrently), THR 3731 with a minimum grade of C- (may be taken concurrently), or THR 3735 with a minimum grade of C- (may be taken concurrently)

**Restriction(s):** Enrollment limited to students with a class of Senior; enrollment is limited to students with a major in Theatre Honors; enrollment limited to students in the BA in Fine Arts or Bachelor of Fine Arts programs; enrollment limited to students in a Bachelor of Arts or Bachelor of Fine Arts degrees.

**THR 5301 Design Skills - Drafting I Cr. 3**

Specific instruction in theatrical drafting techniques, including hand drafting and the use of 2D AutoCAD in the drafting of theatrical scenery and lighting. Offered Fall.

**Fees:** \$95

**THR 5311 Stage Design Cr. 3**

The scenic designer's multiple analysis of a play. Practice in evolving a technique of scenic design by study of selected plays with execution of sketches and working drawings. Offered Intermittently.

**Prerequisite:** THR 1411 with a minimum grade of C-

**Fees:** \$30

**Repeatable for 6 Credits**

**THR 5315 Entertainment Design - Scenery I Cr. 3**

This class will focus on the exploration of the theatrical text, and the design process as it relates to scenery. Studio skills, including research, sketching, drafting and model making, will be incorporated into a working process aimed at designing scenery for the theatre. Offered Winter.

**Prerequisite:** THR 5301 with a minimum grade of C-

**Fees:** \$30

**THR 5322 Introduction to Costuming Cr. 2**

Introduction to techniques used in costume construction and manipulation. Offered Fall.

**THR 5325 Entertainment Design - Costume I Cr. 2**

Advanced costume design projects concentrating on the expression of character through design principles. Further development of drawing and rendering skills. Offered Every Other Winter.

**Prerequisite:** THR 5010 with a minimum grade of C- or THR 5321 with a minimum grade of C-

**Fees:** \$30

**THR 5331 Entertainment Design - Lighting I Cr. 3**

Explores of the role of lighting designer in the contemporary theatre and live entertainment industry. Through hands on, project-based coursework, students will explore the art of lighting design and its various industry applications, including theatre, dance, opera, architecture, themed entertainment, and concert performances. Offered Fall.

**Fees:** \$45

**THR 5335 Advanced Stage Lighting Design Cr. 3**

Examination of situations and responsibilities encountered in professional lighting design. Project work based on large-scale, complex requirements. Offered Intermittently.

**Prerequisites:** THR 5070 with a minimum grade of C- or THR 5331 with a minimum grade of C-

**Fees:** \$45

**THR 5422 Introduction to Scene Painting Cr. 3**

Studio and demonstration course as an introduction to painting for the stage, with an emphasis on the materials, texturing techniques, three-dimensional effects and the beginning work from painter's elevations. Offered Intermittently.

**Fees:** \$70

**THR 5426 Advanced Scene Painting Cr. 3**

Studio and demonstration course for the design or technical theatre student. Materials, techniques, styles of scene painting. Offered Intermittently.

**Prerequisite:** THR 5422 with a minimum grade of C- or THR 5140 with a minimum grade of C-

**Fees:** \$70

**THR 5601 Stage Management - AEA Contracts Cr. 2**

Continuation of THR 7060 or THR 7605; further practical studies in various theatre crafts. Offered Every Other Fall.

**Prerequisite:** THR 7060 with a minimum grade of C or THR 7605 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree.

**THR 5640 Introduction to Accounting for Nonprofit Organizations Cr. 2**

Introduction to accounting for nonprofit organizations. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 5642 Research Methods and Technology in the Theatre Management Cr. 3**

Explores the research methodologies and technologies used by leaders in the theatre and other arts disciplines, including website development, social media management, email marketing, data collection, ticketing systems/CRMs. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 5711 Play Direction Cr. 3**

Principles and theories of stage movement, blocking, casting, rehearsing. Students required to direct scenes and one-act plays for class presentation. Offered Fall.

**Prerequisites:** THR 1121 with a minimum grade of C-, THR 1211 with a minimum grade of C-, and (THR 1215 with a minimum grade of C- or THR 2211 with a minimum grade of C-)

**Fees:** \$25

**THR 5721 Playwriting Cr. 3**

Introduction to the craft of writing for the stage. Students required to write a full-length dramatic script. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$10

**THR 5751 Study Abroad: Moscow Art Theatre School Cr. 1-3**

**Satisfies General Education Requirement:** Global Learning Inquiry

Intensive training in acting or another branch of theatre. Study is conducted on-site at the Moscow Art Theatre School, Moscow, Russia. Offered Spring/Summer.

**Repeatable for 3 Credits**

**THR 5755 Study Abroad: Directed Study in Russian Theatre Cr. 1-3**

Focused studies on Russian theatre, performance, design and production; directed studies in contemporary Russian. Offered Spring/Summer.

**Prerequisites:** THR 5600 with a minimum grade of C- (may be taken concurrently) or THR 5751 with a minimum grade of C- (may be taken concurrently)

**THR 5811 Development of the Drama I: Greek to Eighteenth Century Cr. 3**

Plays from the Greek through the eighteenth century, including Shakespeare; relation of drama to an era and its theatre. Offered Fall.

**Fees:** \$10

**THR 5812 Development of the Drama II: Nineteenth Century to Modern Cr. 3**

Plays and theories of the theatre from the nineteenth century to modern times; relation of drama to an era and its theatre. Offered Winter.

**Fees:** \$10

**THR 5821 Black Dramatic Literature and Performance Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Critical study of significant Black dramatists of the American stage: Willis Richardson, Marita Bonner, Randolph Edmonds, Langston Hughes, Alice Childress, Lorraine Hansberry, Ed Bullins, Amiri Baraka, Ntozake Shange, and August Wilson. Offered Yearly.

**Fees:** \$10

**Equivalent:** AFS 5220

**THR 5831 Pioneers of the Modern Theatre Cr. 3**

Readings and discussions about key figures in modern theatre, dance, and performance theory. Offered Every Other Year.

**Fees:** \$10

**THR 5993 Writing Intensive Course in Theatre Cr. 0**

**Satisfies General Education Requirement:** Writing Intensive Competency Disciplinary writing assignments under the direction of a faculty member. Must be selected in conjunction with a designated corequisite; see section listing in Schedule of Classes for corequisites available each term. Satisfies the University General Education Writing Intensive Course in the Major requirement. Required for all majors. Offered Every Term.

**Prerequisites:** (AFS 2390 with a minimum grade of C, ENG 2390 with a minimum grade of C, ENG 3010 with a minimum grade of C, ENG 3020 with a minimum grade of C, or ENG 3050 with a minimum grade of C) and (THR 5811 (may be taken concurrently) or THR 5812 (may be taken concurrently))

**Restriction(s):** Enrollment is limited to students with a major in Theatre or Theatre Honors; enrollment is limited to Undergraduate level students; enrollment limited to students in a Bachelor of Arts or Bachelor of Fine Arts degrees.

**THR 5995 Special Topics in Theatre Cr. 1-3**

Specialized studies in theatre performance, history, criticism, management, design, and technology. Topics to be announced in Schedule of Classes. Offered Every Term.

**Restriction(s):** Enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 6 Credits**

**THR 6211 Acting Studio I: Fundamentals of the Stanislavski System Cr. 2**

Open only to Hilberry Company members in the M.F.A. Acting Program. Offered for graduate credit only. A study of the Method of Active Analysis through Physical Action, a post-1991 understanding and practice of the teachings of Konstantin Stanislavski. Subject matter to be chosen from modern texts - Anton Chekhov through Eugene O'Neill. Offered Fall.

**Restriction(s):** Enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$25

**THR 6215 Acting Studio II: Introduction to the Michael Chekhov Cr. 2**

Understanding and application of the principles and tools of the Technique: Psycho-physical approach; Imagination and Incorporation of Images; Improvisation and Ensemble work; Atmosphere; and Psychological Gesture. Subject matter to be chosen from the plays of William Shakespeare. Clues from First Folio renditions of the plays will be identified on all analysis assignments. Offered Winter.

**Prerequisite:** THR 6211 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**THR 6219 Performance Techniques for Contemporary Actors Cr. 2**

This class is designed to introduce students to a breadth of performance techniques through a combination of lecture, exercises, and public performance opportunities. The class will provide students with the overview of the theory and practice of technique and will emphasize practical application through performance to provide a solid foundation in the styles of performance utilized in the industry. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Theatre; enrollment limited to students in a Master of Fine Arts degree.

**Repeatable for 16 Credits**

**THR 6221 Theatrical Movement I - Introduction to Physical Awareness Cr. 2**

Pilates Method of body conditioning; learning and perfecting movements of the body at beginning and intermediate levels. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to students with a major, minor, or concentration in Theatre; enrollment limited to students in a Master of Fine Arts degree.

**Fees:** \$15

**THR 6225 Theatrical Movement II - Introduction to Movement Analysis Cr. 2**

Yoga; Laban Movement Analysis for analyzing and further strengthening the body. Offered Every Other Fall.

**Prerequisite:** THR 6070 with a minimum grade of C or THR 6221 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Theatre; enrollment limited to students in a Master of Fine Arts degree.

**Fees:** \$25

**THR 6231 Voice and Speech I - Foundations of Voice for the Actor Cr. 2**

Studies in vocal physiology and production using Fitzmaurice, Linklater, and Lessac techniques. Offered for graduate credit only. Offered Every Other Winter.

**Restriction(s):** Enrollment is limited to students with a major in Theatre; enrollment limited to students in a Master of Fine Arts degree.

**Fees:** \$15

**THR 6235 Voice and Speech II: Speech Foundations Cr. 2**

Studies in speech and phonetics through physiology, articulatory improvement, and phonetics with application to text. Offered for graduate credit only. Offered Every Other Fall.

**Prerequisite:** THR 6050 with a minimum grade of C or THR 6231 with a minimum grade of C

**Restriction(s):** Enrollment is limited to students with a major in Theatre; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree.

**Fees:** \$25

**THR 6301 Foundations of Collaboration and Design Cr. 2**

Introduction to the design process and expectations for graduate-level study in theatrical design. Review of responsibilities of each portion of design team, examination of traditional and electronic methods of research. Offered Fall.

**Restriction(s):** Enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 6303 Design Skills - Drafting II Cr. 3**

Continuation of THR 5301 Design Skills – Drafting 1 for graduate students. Specific instruction in theatrical drafting techniques using the 3 dimensional capabilities of AutoCAD. Offered Winter.

**Prerequisite:** THR 5301 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 6306 Design Skills - Drawing Cr. 1**

Provides each design student with the opportunity to strengthen the connection between their eye and hand, enabling the student to draw spontaneously, energetically and accurately. Designing for theatre is the act of transforming words into visual imagery and drawing is an essential tool in that transformative process. A student who hopes to progress as a designer must simultaneously develop and practice their drawing skills. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**THR 6321 Entertainment Design - Costume II Cr. 2**

Advanced exploration of the principles of costume design as it relates to Western theatrical literature. Offered for graduate credit only. Offered Every Other Winter.

**Prerequisite:** THR 6000 with a minimum grade of C or THR 6301 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$30



**THR 6325 Professional Costume Design II Cr. 3**

Advanced exploration of elements, genres, and styles of costume design as it relates to Western theatrical literature and conventions. Significant project work and research. Offered Every Other Fall.

**Prerequisite:** THR 6060 with a minimum grade of C or THR 6321 with a minimum grade of C

**Restriction(s):** Enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$30

**THR 6331 Professional Lighting Design I Cr. 3**

Examination of the responsibilities and skills needed to function as a professional lighting designer. Varied styles of theatrical production, the lighting designer's communication with other professionals, use of computers in lighting design process, graphic presentation of lighting design concepts. Offered Yearly.

**Prerequisite:** THR 5300 with a minimum grade of C or THR 5335 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$45

**THR 6335 Professional Lighting Design II Cr. 3**

Continuation of THR 6090 or THR 6331. Employment of theatrical lighting techniques in non-theatrical applications such as film and video; preparation and presentation of a lighting design portfolio; roles of unions in theatrical lighting design. Offered Every Other Winter.

**Prerequisite:** THR 5300 with a minimum grade of C or THR 5335 with a minimum grade of C

**Fees:** \$45

**THR 6351 Visual Communication Scenery and Lighting Cr. 2**

With a focus on visual communication as a primary tool for collaboration, this course covers various techniques, workflows and professional practices used to develop a stage design from initial concept to final design. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 6352 Visual Communication Costumes Cr. 2**

This course is designed to help the student develop those skills needed to design costumes for theatrical productions. We will explore various media and rendering techniques as well as script and character analysis. Elements and principles of design will be taught and applied through numerous rendering assignments. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 6361 Design Studio I Cr. 2**

Studio study and application of graphics which support development and representation of the design idea. Rendering techniques, presentational styles, computer graphics. Offered Winter.

**Prerequisite:** THR 6000 with a minimum grade of C or THR 6301 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 6365 Design Studio II Cr. 2**

Continuation of THR 6210 or THR 6361. Offered Fall.

**Prerequisite:** THR 6210 with a minimum grade of C or THR 6361 with a minimum grade of C

**THR 6381 Styles of Design Cr. 3**

Survey and analysis of theatrical styles of production in European and American theatre, related to historical theory and practice. Research and comparative analysis; some laboratory project work. Offered Winter.

**Prerequisite:** THR 6000 with a minimum grade of C or THR 6301 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 6601 Stage Management Studio - Principles Cr. 2**

The principles of stage management from time management to performance management. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 6603 Stage Management Studio - AEA Contracts Cr. 2**

The study of Actors Equity Association contracts from SPT to Broadway and the history and labor laws impact on these contracts. Offered Intermittently.

**THR 6605 Stage Management - Health and Safety Cr. 2**

Continuation of THR 6010 or THR 6601. Offered Winter.

**Prerequisite:** THR 6010 with a minimum grade of C or THR 6601 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 6651 Public Relations and the Arts Cr. 3**

Press writing and public relations for arts organizations. Topics include: writing, media relations, controlling public image. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$10

**THR 6661 Marketing the Theatre Cr. 3**

Marketing strategies for arts organizations. Topics include: subscription and membership sales, individual ticket sales. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$10

**THR 6662 Audience Development and Community Engagement for the Arts Cr. 2**

Introduces students to the principles and practice of developing audiences and community engagement. Analyzing the existing and prospective audience, understanding the needs of a community, and communication best practices, will be emphasized through audience research methodologies. Through case studies and analysis of projects, the student will gain an understanding of the different ways that engagement with the arts occurs. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 6671 Interpersonal Dynamics Cr. 2**

Relationships between individuals in the work environment; understanding differing behavioral styles amongst employees in the theatre. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 6672 Legal and Ethical Issues in the Arts Cr. 3**

An examination of legal requirements of nonprofit arts organizations, specifically addressing tax exemption, reporting of contributions, development considerations, and contemporary legal issues affecting artists. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 6674 Strategic Planning for Arts Organizations Cr. 2**

Strategic planning for the arts introduces students to the practices in developing strategies for organization longevity and stability. Topics include: organizational analysis and establishing organizational priorities, developing and redefining mission and vision statements, developing goals and objectives to meet priorities, preparing a five-year plan for sustainability and growth including budgetary concerns. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 6675 Board Governance in the Theatre Cr. 2**

How boards of directors govern theatres; how dynamics operate between management and boards. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 7211 Acting Studio III: Advanced Michael Chekhov Technique Cr. 2**

Exploration of characterization through study of archetypes, centers, imaginary body, creative individuality, composition of space and connection to the audience. Subject matter will be supported by mask work and the techniques of Jacques LeCoq; and the study of High Comedy. Offered Fall.

**Prerequisite:** THR 6215 with a minimum grade of C or THR 6020 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**THR 7215 Acting Studio IV: Advanced Study of Active Analysis and Physical Approach to Acting Cr. 2**

Advanced Stanislavski practices and exploration of other approaches to the study of physical theatre. Subject matter will explore contemporary, post-modern and devised texts. Offered Winter.

**Prerequisite:** THR 7211 with a minimum grade of C or THR 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$15

**THR 7221 Theatrical Movement III: Dance Techniques Cr. 2**

Broadway and social dance techniques. Offered Every Other Winter.

**Prerequisite:** THR 6110 with a minimum grade of C or THR 6225 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**THR 7225 Theatrical Movement IV - Ensemble Physicality Cr. 2**

Viewpoints; ensemble-generated expressive movement. Offered Every Other Fall.

**Prerequisite:** THR 7020 with a minimum grade of C or THR 7221 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**THR 7231 Voice and Speech III - Vocalizing Heightened Language and Shakespeare Cr. 2**

Application of voice and speech techniques to Shakespeare and heightened language, with additional studies in verse analysis. Offered Every Other Winter.

**Prerequisite:** THR 6235 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**THR 7235 Voice and Speech IV: Accents and Dialects for Stage and Media Cr. 2**

Studies in analyzing, learning, and performing accents and dialects for stage and film. Offered Every Other Winter.

**Prerequisite:** THR 7231 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**THR 7271 Acting for the Camera Cr. 3**

Acting technique and practice with an emphasis on developing the technical and emotional adjustments required for success in Film, TV and industry acting. Units include adjusting theatre acting technique for Film and TV; learning to "hit marks" and to understand frame sizes; and developing video auditions. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**THR 7281 Theatre Aesthetics Cr. 3**

Contemporary and classical theories of performance in drama, musical theatre, and dance. Interactions of acting, design, music, dance, script, and audience. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$10

**THR 7311 Entertainment Design - Scenery II Cr. 3**

A continuation of 5315 Entertainment Design – Scenery I, this course seeks to strengthen and expand the student's design process and presentation skills as they relate to scenery. Through the development and critique of projects that span various genres and styles, students will cultivate a greater facility in conceptualizing an approach to the myriad design challenges in the entertainment industry. Offered Fall.

**Prerequisite:** THR 5315 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 7315 Entertainment Design - Scenery III Cr. 3**

A continuation of 7311 Entertainment Design – Scenery II, this course seeks to refine and reinforce the student's design process and presentation skills as they relate to scenery. Through the design and critique of projects of their own choosing, students will develop their own unique point of view and aesthetic while solidifying their facility in conceptualization. At this level, students are encouraged to seek internship opportunities outside of the academic setting to bring greater perspective to their training. Offered Every Other Fall.

**Prerequisite:** THR 7311 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7321 Costume History I Cr. 2**

Historical trends in fashion from ancient Egypt to Elizabethan England, as it pertains to theatre arts and its literature. Study of various periods and genres; design of costumes for plays of these periods based on a historical approach. Offered Every Other Winter.

**Prerequisite:** THR 6301 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7325 Costume History II Cr. 2**

Continuation of THR 7321. Historical trends in fashion from Jacobean England through the 21st Century. Offered Every Other Fall.

**Prerequisite:** THR 7321 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7331 Entertainment Design - Lighting II Cr. 3**

An intermediate practice in the design and execution of lighting for the contemporary theatre and live entertainment industry. Through hands on, project-based coursework, students will explore the art of lighting design and its various industry applications, including plays, musical theatre, opera, and dance. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7335 Entertainment Design - Lighting III Cr. 3**

An advanced study of the practice of lighting design in the contemporary theatre and live entertainment industry. Through hands on, project-based coursework, students will exercise their craft in the art of lighting design specifically focused on the application of advanced lighting technology to commercial entertainment including large scale musicals, operas, dance, themed entertainment, and architectural lighting applications. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7341 Design Skills - Digital I Cr. 2**

Students will gain a working knowledge of the fundamental concepts and features needed to master programs in the Adobe Creative Suite widely used by set, lighting, costume and projection designers. This course will cover Photoshop, Illustrator and After Effects. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7342 Design Skills - Digital II Cr. 1**

Provides an advanced study of software that is necessary for the growth of entertainment designers and managers. Students will attain an advanced understanding of industry standard software, while also exploring cutting edge software that might be incorporated into their design and management work in the future. We will explore the foundations of Vectoworks (VWX), FileMaker Pro, and PureData (Pd) as a group, then continue individualized study of the application of these softwares to each individual's specific discipline (Scenic Design, Lighting Design, and Stage Management). Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7371 Entertainment Design - Projection Cr. 2**

Specialized study in the use of projection and media as an integrated storytelling device in theatre. Through instructor lead group discussions and critique sessions of group and individual projects, this class will focus on the exploration of the theatrical text, and the design process as it relates to projections. We will survey the brief history and fast evolution of theatrical projection design as we engage with the exploration of possibilities of this discipline. Students will cultivate a sharp awareness of the effects of added visual imagery coupled with a sensitivity to how that imagery affects the substance of what is being communicated to the audience. Designers who possess a keen awareness of how projected imagery can add to (or distract from) the telling of a story will be equipped to make strong design choices that are both compelling and supportive of the text. Offered Every Other Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7381 Architecture and Decor Cr. 3**

Historical study of the form and elements of architecture and decoration; emphasis on theatrical design. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$20

**THR 7389 Design Internship Cr. 3**

Students are involved with the creative process and execution of a design element for a production at a commercial theatre in the Detroit Metro area. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree.

**THR 7581 Repertory Theatre: Acting Cr. 1-4**

Supervised experience in the Classic Theatre repertory program. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 18 Credits**

**THR 7582 Advanced Production Practice : Pre-Production Cr. 2**

Supervised experience in practical application of design, technology and management specific to the design and implementation required to produce classical and contemporary live productions across disciplines, genres and styles. Within this course, advanced students are assigned roles on collaborative production teams to create original designs and technical solutions for various public performances, including dance concerts, plays, and musicals produced by the Maggie Allesee Department of Theatre and Dance. Offered Fall, Winter.

**Restriction(s):** Enrollment is limited to students with a major in Theatre; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree.

**Repeatable for 12 Credits**

**THR 7583 Advanced Production Practice: Production Cr. 2**

Supervised experience in practical application of design, technology and management specific to the design and implementation required to produce classical and contemporary live productions across disciplines, genres and styles. Within this course, advanced students are assigned roles on collaborative production teams to create original designs and technical solutions for various public performances, including dance concerts, plays, and musicals produced by the Maggie Allesee Department of Theatre and Dance. Offered Winter.

**Restriction(s):** Enrollment is limited to students with a major in Theatre; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree.

**Repeatable for 12 Credits**

**THR 7584 Graduate Practicum in Theatre Management Cr. 1-3**

Supervised experience in various management assignments for WSU and for marketing and audience engagement activities for the Theatre Department. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 18 Credits**

**THR 7601 Stage Management - Event Management Cr. 2**

Continuation of THR 6020 or THR 6605. Offered Fall.

**Prerequisite:** THR 6020 with a minimum grade of C or THR 6605 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7603 Stage Management Studio - Commerce of Theatre Cr. 2**

Prepares students with the requisite skills and understanding required to seek employment in the commercial and not-for-profit entertainment industry. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7605 Stage Management - Performance Management Cr. 2**

Continuation of THR 7050 or THR 7601. Offered Every Other Winter.

**Prerequisite:** THR 7050 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 7651 Leadership in the Arts Cr. 3**

Modern leadership skills and techniques in theatre and in external environments. Topics include visioning, team building, consensus building, leadership communications, distinctions and similarities between leadership and management. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$10

**THR 7652 Arts Policy and Advocacy Cr. 3**

All artists and arts organizations exist within a particular policy environment. It is essential that arts administrators understand arts and cultural policy in order to ensure the well-being of their organizations, play a role in improving the quality of life in their communities, to be active participants in civil society, and to be effective advocates for the place of the arts in society. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7655 Human Resources and Financial Management for the Arts Cr. 3**

Topics include: leadership, group dynamics, staffing, employment and production-related contracts, accounting and budgeting for non-profit. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$10

**THR 7661 Market Data and Decisions in the Arts Cr. 2**

Market data and analyzing techniques used in theatre; making informed short-term and long-term decisions. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$10

**THR 7662 Production Management for the Theatre Cr. 2**

Explores the process for managing productions including budgeting, communication, and technologies to support the creation, production, dissemination, and stewardship of creative expression. Budgets, systems, controls, resources, and leadership will be explored. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**THR 7665 Development I: Principles of Fundraising for Not-for-Profit Arts Organizations Cr. 2**

Explores the elements and best practices for managing a successful not-for-profit development department. Discussions delve into the responsibilities and practical applications of development— identifying, stewarding, cultivating, and soliciting gifts from annual to capital campaigns. Thorough, practical exploration of board development, institutional identity, proposal development strategies, and solicitation techniques is included. Students are introduced to all aspects of the development sectors: individual giving, corporate sponsorship/ philanthropy, government/legislative, foundations, and special event fundraising. Each student creates a hypothetical organization for use throughout the term. An emphasis is placed on relationship development with potential funders. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$20

**THR 7671 Development II: Advanced Topics Cr. 3**

Explores corporate sponsorship, board recruitment techniques, major gift cultivation strategies, crowdfunding, transitional fundraising, and solicitation techniques with a heavy emphasis on grant research, writing, and reporting. Students focus on an arts organization to model their assignments. The emphasis in the course is on the importance of creativity and innovation in the field of development. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$10

**THR 7675 Producing for the Commercial Theatre Cr. 3**

Focuses on the role of the independent commercial producer, and explores the entrepreneurial skills and qualities that are necessary to be successful without the support of an organizational infrastructure. Among the topics to be covered: why produce commercially; who produces; Broadway and Off-Broadway; the challenges of creating interesting work in a commercial setting; and the unique challenges of plays and musicals. Practical matters covered include optioning and developing work, raising money, creating budgets, hiring a freelance team, and utilizing marketing/press/advertising to attract an audience. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 9 Credits**

**THR 7741 Dramaturgy Cr. 3**

Study and preparation of dramatic texts for production; historical, socio-political and theoretical perspectives for production dramaturgy and literary management. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$10

**THR 7751 Study Abroad: Directed Study in Russian Theatre Cr. 1-3**

Focused studies on Russian theatre, performance, design and production; directed studies in contemporary Russian. Offered Spring/Summer.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 99 Credits**

**THR 7990 Directed Study Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 4 Credits**

**THR 7999 Master's Essay Direction Cr. 1-4**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 4 Credits**

**THR 8211 Acting Studio V: Preparation for the Profession Cr. 2**

Preparation and development of the professional head shot and resume; creation of personal website, and scene selection for the industry showcase. Subject matter will explore camera acting techniques, utilizing television scripts and screenplays. Offered Fall.

**Prerequisite:** THR 7215 with a minimum grade of C or THR 7060 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$15



**THR 8215 Acting Studio VI: Audition and Composition Cr. 2**

Development and execution of the industry showcase; performance and interviews with industry specialists. Subject matter will focus on character types for the individual actor and development of an original solo piece or group devised work. Offered Winter.

**Prerequisite:** THR 8211 with a minimum grade of C or THR 7110 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$25

**THR 8221 Theatrical Movement V - Acrobatics Cr. 1**

Partner Russian Movement (acrobatics) and etude work. Offered Fall.

**Prerequisite:** THR 7100 with a minimum grade of C or THR 7225 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$25

**THR 8225 Theatrical Movement VI - Composition and Physical Devising Cr. 1**

Physical composition class building on previous techniques, working toward original devised performance pieces. Offered Winter.

**Prerequisite:** THR 7140 with a minimum grade of C or THR 8221 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$25

**THR 8231 Voice and Speech V: Accents & Dialects for Stage and Media Cr. 1**

Studies in analyzing, learning, and performing accents & dialects for stage and film. Offered Fall.

**Prerequisite:** THR 7090 with a minimum grade of C or THR 7235 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$25

**THR 8235 Voice and Speech VI - Media Techniques Cr. 1**

Studies in the techniques needed for performance in voice-overs and camera. Offered Winter.

**Prerequisite:** THR 7180 with a minimum grade of C or THR 8231 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$25

**THR 8301 Design Studio III Cr. 2**

Continuation of THR 6220 or THR 6365. Offered Winter.

**Prerequisite:** THR 6220 with a minimum grade of C or THR 6365 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8305 Design Studio IV Cr. 2**

Continuation of THR 7210 or THR 8301. Offered Fall.

**Prerequisite:** THR 7210 with a minimum grade of C or THR 8301 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8605 Stage Management - Commerce of Theatre Cr. 2**

Continuation of THR 7110 or THR 8601; further practical studies in various theatre crafts. Offered Every Other Winter.

**Prerequisite:** THR 7110 with a minimum grade of C or THR 8601 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8661 The Media and the Theatre Cr. 2**

Writing and working with the media: press releases, public service announcements, magazine queries, radio and television spot writing; using print and electronic media through features and interviews. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8665 Managing Groups and Teams Cr. 2**

Relationships between teams; how teams can be utilized to improve work performance. Practices used to strengthen confidence in supervisory skills. Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Fees:** \$20

**THR 8689 Internships in Theatre Management Cr. 3**

Planning and execution of projects in theatre management; evaluation of project effectiveness. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8941 Teaching Internship I Cr. 3**

Assisting faculty members in teaching first-semester undergraduate-level courses. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8945 Teaching Internship II Cr. 3**

Assisting faculty members in teaching second-semester undergraduate-level courses. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8991 MFA Management Exit Project Cr. 1-3**

Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8992 MFA Design Exit Project Cr. 2**

Demonstration in the specific design area in the skills developed by the student designer. Portfolio presentation developed in consultation between the student and the design area advisor. Offered Winter.

**Prerequisite:** THR 6000 with a minimum grade of C or THR 6301 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8995 MFA Acting Exit Project Cr. 3**

Course designed to bridge from academia to the professional world. Selection, research and execution of seven monologues from a variety of period texts; development of a professional website; research and documentation of the artist's job market in a chosen geographic area. The course culminates in a final Oral Examination by each student's M.F.A. Exit Committee. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8998 MFA Theatre Management Exit Project Cr. 3**

Course designed to bridge from academia to the professional world. Development of a professional website and portfolio; research and documentation of the manager's job market in a chosen geographic area. The course culminates in a final Oral Examination by each student's M.F.A. Exit Committee. Offered Winter.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in a Master of Fine Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**THR 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students; enrollment limited to students in a Master of Arts degree; enrollment is limited to students in the Department of Theatre and Dance.

**Repeatable for 8 Credits**

## TIS - Technology, Information Systems and Analytics

**TIS 3630 Business Information Systems Cr. 3**

Introductory Technology, Information Systems and Analytics course, which establishes a foundation for understanding the value of information systems in organizations. Provides a management-oriented study of computer-based information systems in organizations and an overview of the manner in which information systems and technology supports business processes, managerial decision-making, and organizational strategy. No credit after former ISM 3630. Offered Every Term.

**Restriction(s):** Enrollment limited to students in the School of Business.

**TIS 4500 Business Co-op Assignment Cr. 0**

Provides students with practical application of theory to on-the-job experience. Students must be admitted to the University's Cooperative Education Program during the work semester that the course is to be taken. Students will normally be assigned to a cooperating business organization for internship periods of one semester. No credit after former ISM 4500. Offered Yearly.

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 4575 IT Security Cr. 3**

Provides an investigation of contemporary issues in computer security. Students are exposed to the spectrum of security activities, procedures, and methodologies. Topics include: inspection and protection of information assets; detection of and reaction to threats to information assets; examination of pre- and post-incident procedures, and technical and managerial responses; and an overview of information security planning and staffing functions. No credit after former ISM 4575. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 4990 Directed Study in Information Systems Management Cr. 1-3**

Provides the student with the opportunity to focus on advanced readings, projects (e.g., tutorials, certifications), and research in a particular area of information systems management that is of interest to the student and faculty member. Offered Every Term.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 5200 ERP Systems: Concepts and Practice Cr. 3**

Discusses the role and function of ERP systems within organizations; analyzes the major business processes in their organization and their implementation using ERP software; provides hands-on use of ERP tools for transaction processing and decision support; and describes the use of ERP systems for customer relationship management (CRM), supply chain management (SCM), and electronic commerce. Offered for undergraduate credit only. No credit after former ISM 5200. Offered Winter.

**Prerequisites:** ACC 3010 with a minimum grade of C, ACC 3020 with a minimum grade of C, and (ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C)

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Fees:** \$117

**Equivalent:** ACC 5200

**TIS 5210 Blockchain Fundamentals for Accounting and Business Cr. 3**

Introduces blockchain, which is a public, transparent, secure, immutable and distributed ledger. Blockchains can be used to record and transfer any digital asset, not just currency. Progressing from a detailed study of how blockchain works in Bitcoin; this course also discusses alternative blockchain platforms; potential uses of blockchain in accounting, other areas of business, and society; and this technology's potential impact on accounting systems, business transactions, financial services, government, and banking management. This course is taught completely online. No credit after former ISM 5210. Offered Spring/Summer.

**Prerequisite:** ACC 3010 with a minimum grade of C and ACC 3020 with a minimum grade of C

**Equivalent:** ACC 5210

**TIS 5530 Ethics in Information Technology Cr. 3**

An awareness of the wider social, legal and ethical issues of information technology. Relationship between technological change, society and the law. Student is introduced to legal issues such as intellectual property and liability for defective software. Offered for undergraduate credit only. No credit after former ISM 5530. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C (may be taken concurrently) or TIS 3630 with a minimum grade of C (may be taken concurrently)

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 5560 Survey of e-Commerce Cr. 3**

Provides an introduction to electronic commerce. Topics include: e-commerce scope, business-to-business (B2B) and business-to-consumer (B2C) activities; supporting software, hardware, networking, security technologies; readings and online discussions. Offered for undergraduate credit only. No credit after former ISM 5560. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 5570 Introduction to Business Analytics Cr. 3**

Focuses on developing techniques to analyze large datasets and using techniques, algorithms, and software to automate the analysis and exploration of those datasets. Covers the methodology, major software tools, and applications in the data mining and analytics field. Offered for undergraduate credit only. No credit after form ISM 5570. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 5580 Introduction to Data Visualization for Business Cr. 3**

The purpose of this course is to teach students how to convert raw data into insightful visualizations that aid business decision making. Students will learn how to work with large complex data sets using the R environment and its various graphics packages. Basic programming experience is recommended but not required. No credit after former ISM 5580. Offered Intermittently.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 5670 Special Topics in Information Systems Cr. 3**

Topics range from JAVA to digital video creation and analytics. Offered for undergraduate credit only. No credit after former ISM 5670. Offered Intermittently.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**TIS 5705 Inbound Information Technology Cr. 3**

Provides insights and practical guidelines to help students learn how to create an appealing and engaging digital presence for businesses. The discussion focuses on topics relevant to planning, managing, and implementing on-line and social media interactivity such as: search engine organization (SEO), inbound links, page ranking, tagging content, pillaring content, publishing content, analytic reports, blogging, tweeting and other social media. Offered for undergraduate credit only. No credit after former ISM 5705. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Fees:** \$50

**TIS 5820 Systems Analysis and Design Cr. 3**

Presents a structured and formal approach to information systems development. Analysis, logical requirements specification, general and detailed design, control, and implementation of information systems are discussed. Offered for undergraduate credit only. No credit after former ISM 5820. Offered Every Term.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 5860 Data Communications and Networks Cr. 3**

Data communication concepts and terminology, communication system design approaches, data communications standards, data communications software and hardware, network architecture, distributed management information systems. Offered for undergraduate credit only. No credit after former ISM 5860. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Fees:** \$13

**TIS 5890 Internship in Information Systems Cr. 3**

Student performs assigned tasks and responsibilities in a professional manner under supervision of host-employer for a minimum of 160 hours during the semester, abiding by the rules and regulations established by the employer and expected by all employees; student must satisfactorily complete all course requirements outlined in the internship program for the School of Business Administration. Offered for undergraduate credit only. No credit after former ISM 5890. Offered Every Term.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 5900 Project Management Cr. 3**

Understanding and appreciation of the different knowledge areas of project management. Insight into developing the inputs, tools, techniques, and outputs to successfully manage products. Offered for undergraduate credit only. No credit after former ISM 5900. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Equivalent:** MGT 5900

**TIS 5992 Database Systems Cr. 3**

Details the importance of data in today's enterprise and describes the theories, models, and techniques for designing, developing, creating, and manipulating a database. Students will practice data modeling, physical database design, database implementation, and complete introductory SQL exercises. Offered for undergraduate credit only. No credit after former ISM 5992. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 5994 Software Tools for Business Applications Cr. 3**

Introduces the student to the use of the Internet to create a digital presence. Students design and develop websites, create responsive web pages to provide an optimal viewing experience, and integrate database functionality allowing all web pages to "know" who is looking at the information using HTML, Javascript, Hubl, HubDB, Wistia, and cascading style sheets (CSS). Smart design includes content complete with video, progressive forms, and focused calls-to-action. Offered for undergraduate credit only. No credit after former ISM 5994. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**Fees:** \$13

**TIS 6997 Information Systems Policy and Management Cr. 3**

Within the overall structure of the systems approach, this capstone course integrates the managerial, technical, and strategic planning and control concepts developed throughout the undergraduate courses. It also focuses on the concepts and methodologies necessary for management of information systems projects. Offered for undergraduate credit only. No credit after former ISM 6997. Offered Yearly.

**Prerequisites:** ISM 3630 with a minimum grade of C or TIS 3630 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Undergraduate level students; enrollment limited to students in the School of Business.

**TIS 7290 Blockchain: An Accounting and Business Perspective Cr. 3**

Introduces blockchain: a public, transparent, secure, immutable, and distributed ledger. Blockchains can be used to record and transfer any digital asset, not just currency. The course covers the workings, applications, and potential impact of this revolutionary technology. No credit after former ISM 7290. Offered Fall.

**Prerequisite:** BA 7000 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**TIS 7505 Information Analytics: Inbound Information Technology Cr. 3**

The evolving cyberspace organization. Insights and practical guidelines to create an appealing and engaging digital presence. Discussion focuses on topics relevant to planning, managing, and implementing online and social media interactivity such as search engine organization (SEO), inbound links, blogging, page ranking, tagging content, tweeting, publishing content, analytic reports, and social media. No credit after ISM 5705. Offered Fall.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$113

**TIS 7507 Application Development with Swift Cr. 3**

Establishes a foundation for understanding the value of mobile applications in the enterprise and how to design, create, and publish mobile applications for the Apple iOS using Swift and Xcode. These tools allow you to quickly develop a mobile application so you can focus your energy on your design. No credit after former ISM 7507. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$115

**TIS 7510 Database Management Cr. 3**

Overall examination of database management and knowledge management systems. Theories, models, and techniques for designing, developing, understanding, utilizing and creating competitive advantage through database systems. Topics include data modeling, logical and physical database design, strategic value of data, introductory SQL, knowledge management, and emerging database technologies. No credit after TIS 5992 or former ISM 5992 or ISM 7510. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TIS 7520 Information Systems Design Cr. 3**

Non-technical course in how to use information systems to add value to an organization. Use of system analysis techniques to study and identify information needs of organizations and integration of IT specialists and manager-users. Topics include: IT and organizational design, inter-networking infrastructure, organization and leading the IT function. How information systems professionals link MIS to specific business operations and objectives to increase value; how managers may use information systems to support activities and increase individual productivity. No credit after former ISM 7520. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TIS 7530 Societal and Ethical Issues in the Information Age Cr. 3**

Issues such as computer crime, privacy, copyrighting of software; other ethical issues related to use of business systems and information systems. No credit after former ISM 7530. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TIS 7560 Survey of E-Commerce Cr. 3**

Introduction to electronic commerce: scope, business-to-business and business-to-consumer activities; supporting software, hardware, networking, security technologies; readings and online discussions. No credit after former ISM 7560. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TIS 7570 Advanced Business Analytics Cr. 3**

This course focuses on learning skills necessary for generating insights from data to aid business decision making. Students will learn how to ingest, prep, transform, visualize and analyze data using the popular open source data science tool - R. Specifically, the course will cover descriptive analytics (e.g., data visualization, query, data slicing), and, predictive analytics (e.g., regression, clustering, classification). Basic programming experience is recommended but not required. No credit after TIS 5570 or former ISM 5570 or ISM 7570. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TIS 7575 Corporate Computer Networks and IT Security Cr. 3**

Broad selection of contemporary issues in computer security. Security activities, methods, methodologies, and procedures including inspection and protection of information assets, detection of and reaction to threats to information assets, and examination of pre- and post-incident procedures, technical and managerial responses, and an overview of the Information Security Planning and Staffing functions. Includes many topics for Security+ exam by CompTIA. No credit after TIS 4575 or after former ISM 4575 or ISM 7575. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**TIS 7680 Information Visualization for Business Cr. 3**

The purpose of this course is to teach students how to use information visualization tools and techniques to inform and persuade decision makers in organizations, government, and the public. Specifically, students will learn how to visualize large and complex data using the R environment and its various graphic packages. Basic programming experience is recommended but not required. No credit after former ISM 7680. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**TIS 7890 Internship in Information Systems and Management Cr. 1-3**

Students work a minimum of 160 hours for fifteen weeks in an entry-level management position in information systems. No credit after former ISM 7890. Offered Yearly.

**Prerequisites:** ISM 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**Repeatable for 6 Credits**

**TIS 7900 Project Management Cr. 3**

Management of resources (budget, personnel, materials, etc.) within the scope of a given project; understanding and appreciation for the different knowledge areas of project management; insight into identification of inputs, tools, and techniques of project management. No credit after TIS/ MGT 5900 or after former ISM 5900 or ISM 7900. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Equivalent:** MGT 7900

**TIS 7994 Digital Content Development Cr. 3**

Development of responsive, smart, and personalized web sites using leading web development tools and technologies. No credit after former ISM 7994. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.



**TIS 7995 Directed Study in Information Systems and Management Cr. 1-3**

Advanced independent readings and research under supervision of a graduate faculty member in areas of special interest to student and faculty member. No credit after former ISM 7995. Offered Yearly.

**Prerequisites:** ISM 7500 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students; enrollment limited to students in the School of Business.

**TIS 7996 Principles for Customer Relationship Management Cr. 3**

Investigation of the antecedents and consequences of implementing a customer-relationship management strategy. The course will provide students with insight on: What CRM and its conceptual foundations are; How CRM forces the interaction between corporate strategy, organizational structure, supply chain, and customer facing front end; The role of measuring and managing customer satisfaction, customer loyalty and customer profitability; Hands-on application with salesforce.com. No credit after former ISM 7996. Offered Intermittently.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Fees:** \$75

**TIS 8000 Seminar in Information Systems and Management Cr. 3**

Current developments and emerging trends. No credit after former ISM 8000. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

## UGR - Undergraduate Research

**UGR 1050 Research Methods - BUILD Scholars Cr. 1**

**Satisfies General Education Requirement:** Wayne Experience

A one-semester course that is part of the BUILD program and is designed to help students prepare for the Research-based laboratory courses BUILD Scholars will take in the Winter Term. Offered Fall.

## UP - Urban Planning

**UP 3530 Urban and Regional Planning Cr. 3**

Introduction to urban and regional planning concepts, including zoning, growth management and economic development. Emphasis on metropolitan Detroit. Offered Yearly.

**Prerequisites:** US 2000 with a minimum grade of D-

**Equivalent:** US 3530

**UP 4460 Sustainable Cities Cr. 3**

Through the lens of the planner's triangle of Environmental preservation, Equity, and Economic growth—the 3-Es of sustainability—this course explores the ways in which the natural world affects and is affected by both growing and shrinking cities, and how cities may manage growth, shrinkage, or redevelopment to create a more green, just, and prosperous urban future. Offered Fall.

**UP 4550 State, Regional and Urban Economic Development: Policy and Administration Cr. 3**

This course examines fundamental theories and concepts of economic development, traces how policy thinking about the development process has changed over time, and highlights issues of emerging relevance in the field. In the last four decades, shifting global economic trends (as well as new empirical findings from extensive research across the globe) have posed new challenges to our understanding of how and why regions grow, develop, and change – and what to do about it. In the course, we will use directed readings, policy debates, and case materials to examine how our current thinking about key development problems—such as economic growth, employment, competitiveness, industrial upgrading, skill formation, the organization of work, and institutional arrangements that sustain innovative development processes—has changed in light of the new global challenges. Offered Yearly.

**UP 5010 Resources and Communication in Planning Cr. 3**

Introduction to the use of basic tools and techniques of professional planning practice, including data resources, computer applications, map and plan preparation, presentation techniques. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 5110 Urban Planning Process Cr. 3**

Scope and historical development of planning. Topics relevant to the practice of planning: theory, planning practice, social and physical development policy. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 5430 Cities and Food Cr. 3**

Analysis of urban food systems for their social, economic, health and environmental impacts; discussion of strategies to develop sustainable alternatives. Offered Winter.

**UP 5650 Metropolitan Detroit Cr. 3**

Comprehensive analysis of metropolitan Detroit: city, suburbs and surrounding region. Historical development, physical foundations, economic and political expansion, ethnic and cultural areas, geopolitical infrastructure, social change, present-day problems and current events shaping the area's spatial structure. Offered Yearly.

**UP 5670 Modern American Cities Cr. 3**

History of U.S. cities since World War II. Topics include suburbanization, deindustrialization, gentrification, and globalization. Offered Intermittently.

**Equivalent:** HIS 5670

**UP 5820 Urban and Regional Economics Cr. 4**

Introduction to the economic foundations of urban problems; land use, housing, poverty, transportation, local public finance; regional industry mix, income, growth and development; the national system of cities and location of firms. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**Equivalent:** ECO 5800

**UP 5999 Special Topics Cr. 1-4**

Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**UP 6120 Planning Studies and Methods Cr. 4**

Economic base, population, and land use studies. Discussion of approaches used to solve selected community development problems. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 6210 Urban Design Elements Cr. 3**

Introduction to the role of urban design and the concept of design criteria, design variables, and terminology. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 6260 Land Use Policy and Planning Cr. 3**

Role of economics, history, and technology in shaping land use patterns within limits established by public policies and the legal system. Development of conceptual and practical skills for effective ethical intervention in local land markets. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor; enrollment is limited to Graduate level students.

**UP 6310 Real Estate Development Cr. 3**

Process of urban real estate development; emphasis on market analysis, the construction process, and finance. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 6320 Quantitative Techniques I Cr. 4**

Statistical inference with emphasis on applications including central tendency, dispersion, hypothesis testing, correlation and regression. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**Equivalent:** GPH 6420

**UP 6340 Community Development Cr. 3**

Overview of contemporary community development practice in U.S. cities with emphasis on community-based approaches and the role of non-profit organizations. Housing and economic development aspects of neighborhood revitalization; social and political development. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor; enrollment is limited to Graduate level students.

**UP 6350 Housing Policy and Programs Cr. 3**

Governmental housing policies and programs at the Federal, state and local levels. Role of community-based organizations in housing activities. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 6470 Environmental Planning Cr. 3**

Overview of local and regional environmental planning and policy. Rationale and ethics of environmental interventions; major elements of environmental plans and impact statements; current approaches to environmental problems. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor; enrollment is limited to Graduate level students.

**UP 6510 Urban and Regional Systems Cr. 3**

Theory course dealing with concepts, processes and organization of urban and metropolitan regions, primarily focusing on the western world experience. Primary focus on system structure and change in response to market forces, technology, and public policy. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 6520 Transportation Policy and Planning Cr. 3**

Introduction to the role of transportation in the planning process involving both regional and urban considerations. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 6550 Regional, State, and Urban Economic Development: Policy and Administration Cr. 3**

Examination of regional, state, and local economic development theory, analysis, policy and administration. Offered for graduate credit only. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor; enrollment is limited to Graduate level students.

**Equivalent:** ECO 6650, PS 6440

**UP 6570 Local Economic Development: Implementation and Finance Cr. 3**

Detailed examination of economic development programs available to local governments for commercial revitalization (neighborhood and downtown), and industrial development and redevelopment. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor; enrollment is limited to Graduate level students.

**UP 6650 Planning and Development Law Cr. 3**

Techniques available to guide land development. Concepts in zoning, subdivision regulations, timing and sequence of land development. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 6680 Neighborhood Decline and Revitalization Cr. 3**

Examination of reasons for neighborhood change and how plans and policies can be specified and implemented for neighborhood improvement. Offered for graduate credit only. Offered Every Other Year.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**UP 6700 Geographic Information Systems Cr. 4**

Principles and applications of GIS, including spatial statistics, computer graphics, computer cartography. Offered for graduate credit only. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor; enrollment is limited to Graduate level students.

**UP 6750 State and Local Public Finance Cr. 4**

Theory and practice of state and local government taxation and expenditure. Attention devoted to State of Michigan and municipalities in Detroit metropolitan area. Topics include: government organization, voting and mobility models, property and sales taxes, user charges, grants, education expenditure, and economic development. Offered Yearly.

**Restriction(s):** Enrollment limited to students with a class of Applicant Masters, Candidate Masters, Unranked Grad, Graduate Certificate or Post Bachelor.

**Equivalent:** ECO 6520

**UP 7000 Detroit Revitalization Project Cr. 0**

Employment placements in Detroit public and private institutions and companies for the purpose of workshop experience in practical solutions to urban and community revitalization. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**UP 7010 Planning and Decision Theory Cr. 3**

Review of political, ethical, professional dimensions of planning; models of planning; communicative and group processes; negotiation and conflict resolution; decision-making in contexts characterized by uncertainty and complexity. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**UP 7130 Advanced GIS Applications Cr. 4**

Use of GIS for spatial analysis and computer cartography. No credit after GPH 4600. Offered Fall.

**Prerequisite:** UP 6700 with a minimum grade of C

**Restriction(s):** Enrollment is limited to Graduate level students.

**UP 7500 Master's Professional Report Cr. 3**

Applies the skills and competencies learned in the program on a project of the student's choosing. Under the close guidance of a MUP faculty member, the student will study a planning topic, issue, or community project and write a professional report based on this study with implications for local practice/policy. The goal is that the student demonstrate an understanding of urban planning theory and practice, public policy and planning processes, analytical techniques, and appropriate professional writing and analysis skills. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**UP 7700 Projects in Urban Planning Cr. 4**

Development and application of research design to specified urban problems. Offered Every Other Year.

**Restriction(s):** Enrollment is limited to Graduate level students.

**UP 7800 Internship in Planning Cr. 1-3**

Practicum for MUP Program. Field placement with public or nonprofit agency assigned by Urban Planning Intern Coordinator. Offered Yearly.

**Restriction(s):** Enrollment is limited to Graduate level students.

**UP 7810 Internship in Community Food Systems Planning Cr. 3**

Practicum in community food systems planning. Field placement with public or nonprofit agency or private firm assigned by the Urban Planning Intern Coordinator. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**UP 7990 Directed Study Cr. 1-4**

Independent reading and research. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

**UP 7996 Research Topics Cr. 1-4**

Individual problems in urban planning. Offered Every Term.

**Restriction(s):** Enrollment is limited to Graduate level students.

**Repeatable for 6 Credits**

**UP 7999 Master's Essay Direction Cr. 3**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**UP 8999 Master's Thesis Research and Direction Cr. 1-8**

Offered Every Term.

**Restriction(s):** Enrollment limited to students with a class of Candidate Masters; enrollment is limited to Graduate level students.

**Repeatable for 8 Credits**

## US - Urban Studies

**US 2000 Introduction to Urban Studies Cr. 4**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry, Social Inquiry, Social Sciences

In this introductory urban studies course, students learn about the historic and contemporary forces driving urbanization with an emphasis on US cities and urban areas; the effects of these forces on diverse population groups; and challenges facing cities and strategies to resolve them. Although the course will draw from international contexts, wherever possible, experiences of and from the Detroit metro—city and suburbs—will be used to illustrate particular themes. Student learning centers on an examination of issues related to diversity, equity, and inclusion, and broader social phenomena. Offered Every Term.

**Equivalent:** GPH 2000, HIS 2000, PS 2000, SOC 2500

**US 2200 Global Urbanism Cr. 3**

**Satisfies General Education Requirement:** Global Learning Inquiry  
The Global Urbanism course draws on directed readings, film and cases studies to illustrate the complexity of urbanity and urbanization in the developing and developed worlds – first through a comparative historical exploration of global urbanization and development, and then through a practical lens that seeks out solutions to broadly experienced problems. The class will use aspects of social science, history and urban planning as a framework for developing both inter-cultural perspectives on global urban development and also nuanced lessons for addressing similar challenges in different places. Offered Yearly.

**US 2350 Black Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
Explores the historical, cultural and structural aspects of the Black urban experience in Detroit from the late 19th Century to the present, including the role that racism, urbanization and suburbanization have played in shaping racial, spatial and economic inequality in the Detroit Metropolitan area. Utilizes an interdisciplinary approach: to interrogate the social and cultural history of Black Detroit, to examine the various forms of Black social movement activism used by Black Detroiters in the 20th Century, and to analyze ways the shifting economic and political currents shaped, and reshaped racism, class, space, and resistance in the Detroit metropolitan area. Offered Fall, Winter.

**Equivalent:** AFS 2350, HIS 2350

**US 3530 Urban and Regional Planning Cr. 3**

Introduction to urban and regional planning concepts, including zoning, growth management and economic development. Emphasis on metropolitan Detroit. Offered Yearly.

**Prerequisites:** US 2000 with a minimum grade of D-

**Equivalent:** UP 3530

**US 3550 Public Health and the City Cr. 3**

Introduces the field of medical geography, or the study of geographic aspects of health and disease. Students will also be introduced to the impact that city life has on health and healthcare in the US and internationally. They will gain an understanding of how geography as a discipline contributes to an understanding of health and health care in urban environments, and how social and economic contexts impact urban health. Mapping techniques will be utilized to examine the spatial patterns of disease and risk factors that may contribute to disease. Offered Yearly.

**Equivalent:** PH 3550

**US 3650 History of Detroit Cr. 3**

**Satisfies General Education Requirement:** Diversity Equity Incl Inquiry  
History of Detroit from European contact to the present, with emphasis on the late-19th and 20th centuries. Offered Fall, Winter.

**Equivalent:** HIS 3650

**US 3900 Topics in Urban Studies and Geography Cr. 1-4**

Special topics focused on Urban Studies and Geography. Offered Every Term.

**Equivalent:** GPH 3900

**Repeatable for 8 Credits**

**US 4000 Internship Cr. 1-4**

Placement in government agencies or the non-governmental sector that provide working experience related to urban issues. Offered Every Term.

**Restriction(s):** Enrollment is limited to Undergraduate level students.

**Repeatable for 4 Credits**

**US 4510 Cities and Regions Cr. 3**

Processes of urbanization and metropolitanization in both the western and non-western worlds. Offered Winter.

**Prerequisites:** US 2000 with a minimum grade of D-, GPH 2000 with a minimum grade of D-, HIS 2000 with a minimum grade of D-, PS 2000 with a minimum grade of D-, or SOC 2000 with a minimum grade of D-

**US 4620 Urban Studies Senior Capstone Research Cr. 3**

**Satisfies General Education Requirement:** Writing Intensive Competency Development and application of research design to specified urban problems. Offered Yearly.

**Prerequisites:** US 4420 with a minimum grade of D-, GPH 6420 with a minimum grade of D-, CRJ 4860 with a minimum grade of D-, SOC 4200 with a minimum grade of D-, or PS 3600 with a minimum grade of D-  
**Restriction(s):** Enrollment is limited to Undergraduate level students.

## WMT - Welding and Metallurgical Engineering Technology

**WMT 3000 Welding Quality and Safety Cr. 3**

Provides the basic knowledge of welding engineering as related to the inspection of welds. Includes an in-depth review of how various national, international structural and automotive welding standards relate to the quality of automatic, semi-automatic and manual welding processes. Understanding weld quality to determine if weldment(s) are fit for purpose is critical in developing a quality program that optimizes design and production requirements for automotive, military and aerospace weldments. Emphasis will be on process selection that minimizes rework, scrap or premature fracturing of production weldments. Examines the interrelationship between weld process, quality standards, material properties, and their effect on the performance of the weldment. Offered Yearly.

**WMT 3100 Engineering Alloys Cr. 3**

A firm and thorough knowledge of engineering alloys is critical in developing an optimal design for a given application while minimizing the risk of material failure. This course examines the interrelationships between processing, structure, properties, and performance of various engineering metals such as ferrous and non-ferrous metals with an emphasis on welding. The intent is to develop the ability both to select appropriate materials to meet engineering design criteria and to understand the effects of thermal treatments, hot and cold work, imperfections, forming, welding and chemical environments upon material properties and performance. Offered Yearly.

**Prerequisites:** ET 2200 with a minimum grade of C-

**WMT 3200 Thermodynamics of Welding and Metallurgy Cr. 3**

The principles and application of the fundamental laws of thermodynamics to metallurgical systems and welding engineering processes. The fundamentals will be used to obtain a thorough understanding of the basic relationships of thermodynamic driving force for phase transformations in metal and alloy systems. These fundamentals will be applied to understand the solid-solid, solid-liquid, and liquid-solid phase transformations occurring during heat-treatment and during welding processes. Offered Yearly.

**Prerequisites:** (ET 2200 with a minimum grade of C- or BE 1300 with a minimum grade of C-) and CHM 1020 with a minimum grade of C-

**WMT 3451 Mechanical Metallurgy Cr. 3**

The course will examine the strength, deformation, and failure of engineering materials from a first-principles materials science principles point of view. Established relationships between the mechanical behavior of materials and their microstructure as well as the control of mechanical behavior through materials processing and microstructural change will be studied. Emphasis will be placed on the behavior of structural defects associated with the welding of metallic alloys and how these defects affect the mechanisms of yielding, plastic deformation, strengthening, fatigue, fracture, and creep. Offered Yearly.

**Prerequisites:** WMT 3100 with a minimum grade of C-

**WMT 3452 Physical Metallurgy Cr. 3**

This course provides foundational knowledge of microstructural evolution during solidification, thermodynamics and phase transformation kinetics, alloy design, heat treatment, and the relationship between processing-microstructure-properties of metals and alloys. This course aims to teach students the crystallography principles of metallic systems, experimental tools, and techniques, solidification of metals and alloys, crystal defects in metals, diffusion kinetics, binary and ternary phase diagrams, cold working, and heat treatment. Students will also gain hands-on experience in heat treatment, metallography, and microscopy through the laboratory component. Offered Yearly.

**Prerequisites:** WMT 3100 with a minimum grade of C-

**WMT 4453 Advanced Welding Metallurgy Cr. 3**

This course provides students with the knowledge and skills they need to become a welding professional. Both theoretical foundation on advanced welding metallurgy and hands-on practical training will be focused of the course. Offered Yearly.

**Prerequisites:** WMT 3452 with a minimum grade of C- (may be taken concurrently)

**WMT 4500 Failure Fracture Analysis Cr. 3**

The scope of this course is to understand various types of failure modes in metals and alloys, contributing factors to failures and analytical and detection methods employed to identify and resolve failure issues. The discussion of the failures of structural members will include design considerations, material selection and mechanical and chemical loading. Offered Yearly.

**Prerequisites:** WMT 3451 with a minimum grade of C-

**WMT 4600 Metallurgy of Welding Processes Cr. 3**

This course teaches the principles and applications of welding processes in addition to the standard fusion processes of shielded metal arc, gas metal arc, gas tungsten arc and flux-cored arc welding. The welding and metallurgical principles of resistance welding, gas welding, solid state welding, plasma arc, submerged arc, laser beam and electron beam welding will be addressed. There will be strong focus on the relationships between weld parameters and metallurgical fundamentals. Offered Yearly.

**Prerequisites:** WMT 3452 with a minimum grade of C-

**WMT 4700 Welding Design Cr. 3**

Offers a practical understanding and application of the design process for projects in welding engineering. The engineering aspects of the production of welded structures from the perspective of program development, concept, design and metallurgy will be taught. Students will gain further understanding of welding theory as it applies to design. Offered Yearly.

**WMT 5800 Welding Automation and Robotics Cr. 3**

The scope of this course is to understand the concepts and technology associated with the operation of automatic and robotic welding systems. This course will incorporate automation and robotic technology with welding metallurgy. Students will learn to develop and edit programs to complete simple and complex welds and learn the effects of welding variables and options on weldment structural integrity as they are applied to automated and robotic weld systems. Offered Yearly.

**Prerequisites:** WMT 4453 with a minimum grade of C-

**Restriction(s):** Enrollment is limited to students with a major in Weld & Metal Engg Tech.



# UNIVERSITY FACULTY

A list of university librarians and archivists (p. 919) follows the list of faculty.

The list of faculty is updated during the normal bulletin revision process. Requests to update the faculty database must be made using the faculty list amendment forms (<http://bulletins.wayne.edu/faculty/update/>).

## A

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