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

### Bioengineering Center

818 W. Hancock, 2208 Bioengineering Center; 313-577-0252; Fax: 313-577-8333

**Director:** King H. Yang

The Bioengineering Center is an interdisciplinary research unit that coordinates and supports joint research activities between the College of Engineering and the School of Medicine. Although the Center is administered by the College of Engineering, the research faculty is drawn from such diverse departments as Anatomy, Physiology, Orthopedics, Neurological Surgery, Mechanical Engineering, Electrical and Computer Engineering, Chemical Engineering, and Physical Medicine and Rehabilitation. The research activities are located on campus as well as in various hospitals and clinics of the Detroit metropolitan area.

Current research projects include a continuing program on trauma biomechanics, the study of human response and tolerance to injury resulting from high speed vehicular accidents and contact sports. This area of research has recently been expanded to include an investigation of the effects of non-lethal munitions, blast-induced mild traumatic brain injuries, and landmine-induced spine and lower extremity injuries. The Center is equipped with a vast array of impact facilities, including three horizontal accelerator mechanisms used for simulating car and aircraft crashes, two linear impactors, three servo hydraulic Instron material testing systems, a high-rate Instron material testing system, and a 12-inch diameter shock tube. The Center is also equipped with a computer-controlled universal receiver (which can fire 9 mm, .357 Magnum, .44 Magnum, and 12 gauge ammunitions) and an air cannon system (which can fire 37 mm sub-munitions through the use of compressed gases) to study the injurious effects of non-lethal munitions as well as behind body armor. In 2015, a split Hopkinson pressure bar system was added to measure high-rate properties of biological materials.

Up to 150 channels of data can be acquired simultaneously for digitization and data processing. Additionally, the Advanced Human Modeling Laboratory in the Center is equipped with an Opteron Cluster an Opteron Cluster #1: 15 nodes (30 CPU, 64 bits) + 1 master (Sun Fire V20z dual AMD Opterons 250 with 4G RAM) linked by a Myrinet network, running RH Linux + Rocks cluster software, an Opteron Cluster #2: 15 nodes (60 CPU, 64 bits) + 1 master, 3 TB raid, running RH Linux and Beowulf cluster software + PBS, a new Opteron Cluster #3 (ON ORDER): 16 nodes (120 CPU, 64 bits) + 1 master, 3TB raid 20GB infiniband interconnect, running RH Linux WS5.2 + Rocks cluster software, and 10 Intel dual Xeon (2GHz-3.2GHz), running RedHat Linux 7.2 to RHWS4. For high-speed graphics, the Center has 4 Intel P4 3.2GHz 1M L2 2G Ram with Nvidia Quadro FX3400 Graphics running RedHat WS4, 3 Intel Core 2 Duo 2GHz with Nvidia Graphics running Windows XP 64-bit and Redhat Linux WS5.1 (dualboot), and legacy capability with HP j6000, j5600, c5600 (dual PA8500, HPUX11), two SGI Octane (dual R1000, IRIX6.5) graphic workstations. For data storage, the Center has Anacapa Opteron 250 2U raid (3.6TB raid mirrored) and 3 external raid boxes on SCSi160/320 (1.8-2.2TB) with an external 12 tapes system (2.4TB capacity).

The Center is also engaged in a study of low back pain, which is a common affliction among workers in industrialized countries, and whiplash associated neck pain. A full neurophysiology laboratory is available for the characterization of neural impulses and the histological evaluation of tissues associated with pain stimuli. Research also includes the characterization of biological materials using uni-axial and multi-axial testing protocols from quasi-static to high strain rates. This activity includes the assessment of orthopedic soft tissues, bone, brain, and individual axons. Other areas of research include human motion biomechanics and orthopedic biomechanics.

The research program in the Bioengineering Center has been strengthened through the creation of a broader graduate program in biomedical engineering. This program, offering both M.S. and Ph.D. degrees, involves fifteen faculty members drawn from seven departments within both the College of Engineering and the School of Medicine. The areas of concentration have been expanded beyond the traditional transportation-related trauma to include age-related injury, engineering neurophysiology and biomaterials, including tissue engineering. Students who wish to major in biomedical engineering should apply for admission to the graduate program in Biomedical Engineering, housed in the College of Engineering. In addition, a number of traditional engineering departments allow their students to concentrate in biomedical engineering; consult the program descriptions in the College of Engineering section of this bulletin.

### Cardiovascular Research Institute

1107 Elliman Building, 421 E. Canfield; 313-577-4630; FAX: 313-577-8615

**Director:** Karin Przyklenk, Ph.D.

http://cvri.med.wayne.edu/index.php

The Cardiovascular Research Institute (CVRI) was chartered in August 2009 with the mission of establishing a nationally and internationally recognized center of excellence for the study of cardiovascular pathophysiology and disease. The hallmarks of the CVRI are collaboration and innovation: the institute serves as a nexus for cardiovascular investigators from a broad range of disciplines and departments within Wayne State University’s School of Medicine with interests and expertise encompassing the continuum from basic molecular and cellular biology to clinical application.
The CVRI and its member-faculty are dedicated to conducting state-of-the-art translational research that is at the forefront of cardiovascular science. Areas of research strength include: myocardial ischemia-reperfusion injury and cardioprotection; cerebral ischemia and stroke; heart failure; thrombosis, and platelet aggregation and coagulation. In addition, the CVRI is committed to providing a robust and productive multi-disciplinary training environment for the next generation of leaders in cardiovascular medicine.

Center to Advance Palliative-Care Excellence (CAPEWAYNE)
4201 St. Antoine, Suite SC-UHC; 313-576-3997; Fax: 313-745-4710
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.

Center for Automotive Research
2121 Engineering; 313-577-3887; Fax: 313-577-8789
Director: Naiem Henein, Ph.D.
Email: henein@eng.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.

A unique research area at CAR is engine cold start at low ambient temperatures to reduce the number of cranking cycles and exhaust emissions in gasoline and diesel engines. In gasoline engines, the hydrocarbon emissions in the first few seconds of engine start, before the catalyst is warmed up, represent a challenging problem. At CAR, strategies have been developed for managing the fuel delivery, intake charge and spark timing to reduce hydrocarbon emissions by cutting the number of cranking cycles and by eliminating combustion instability. The factors that cause misfiring after acceleration have been identified in both gasoline and diesel engines. In diesel engines, innovative strategies for fuel injection have been developed to reduce the cranking period and combustion instability at low ambient temperatures, while injecting smaller amounts of fuel than has been conventionally applied. The low ambient temperature research is conducted in a cold room, electronically controlled to produce ambient temperatures between 25°C and -50°C.

In addition to the cold room facility, the research has been extended to gain a basic understanding of the spray behavior, auto-ignition and combustion processes at low ambient temperatures, using advanced laser based diagnostic techniques. The research is conducted on a unique optically accessible engine at low ambient temperatures. The engine has an extended piston with a transparent piston top for spray and combustion imaging. Furthermore, the engine has four transparent windows on the top of the cylinder for laser beam based combustion diagnostic investigations. In addition, spectroscopic techniques are used to determine the key radicals and combustion intermediates that lead to the auto-ignition of fuel-air mixtures, flame development, formation of nitrogen oxides, soot and other emissions.

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 CO2 detectors and high speed data acquisition systems.

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 CO2 detectors and high speed data acquisition systems.

Center for Excellence and Equity in Mathematics
1309 Faculty Administration Building; 313-577-2558; Fax: 313-577-7596;
Email: ceem@wayne.edu
Director: Steven Kahn, Ph.D.
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 are a 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
3324 Faculty/Admin. Bldg.; 313-577-4378; Fax: 313-993-4073;
Director: Jorge L. Chinea, Ph.D.
Email: aa1941@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

3127 Scott Hall; 540 E. Canfield; 313-577-5323; Fax: 313-577-5218
Email: l.grossman@wayne.edu
Director: Lawrence I. Grossman, Ph.D.
http://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 Center offers the MS and Ph.D. in Molecular Genetics and Genomics and the MS in Genetic Counseling.

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: Frederic S. Pearson
2320 Faculty/Administration Building
Phone: 313-577-3453; Fax: 313-577-8269
http://wwwclas.wayne.edu/pcs/

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 inter-cultural understanding, and enhance local knowledge of global affairs.

Center for School Health

125 Matthaei Building, 5101 Lodge Service Dr.;
Phone: 313-577-0014; Fax 313-577-5002
Director: Nate McCaughtry, Ph.D.
http://coe.wayne.edu/centerschoolhealth

Founded in 2010, the Center for School Health aims to address social, economic, academic and health disparities by improving healthy eating and physical activity opportunities and education in community and educational institutions. The center conducts two types of activities:

1. research on healthy school transformation interventions and
2. providing support services for health promotion and reform initiatives in a range of diverse community and education institutions.

The primary activities conducted in the Center for School Health involve research on healthy school transformation interventions. In these projects, research faculty in the Center design innovative solutions to improving youth and family physical activity and healthy eating in community and education venues, acquire external funding to execute interventions and research, implement health school transformations, and conduct research on process and impact. Several large-scale, long-term, externally-funded healthy school transformation programs include: Building Healthy Communities, the Detroit Healthy Youth Initiative, and the Volunteers, Administrators and Coaches program.

Secondary activities conducted in the Center for School Health include providing support services to community and educational institutions to initiate, support, develop and execute environmental health reforms and individual and population health promotion. Support services provided include: grant writing, professional development, technical assistance, program implementation, curriculum development, evaluation, reporting and marketing, and grant administration.

In 2013, Center for School Health faculty, staff, and graduate students acquired $2.8 million to support healthy school transformation projects; published twenty-eight journal articles, books and chapters; and presented forty-three research and keynote lectures. Their healthy school transformation work involved eighty-four educational institutions, 720 educators and site staff, and 36,000 children and their families.

The Center for School Health supports the educational mission of Wayne State University by serving as an incubator for undergraduate and
graduate research opportunities, field placements, service learning, and internship sites.

Center for School Health faculty include: Nate McCaughtry (Director), Jeffrey Martin, Mariane Fahlmann, Bo Shen, Cheryl Somers, Anne Murphy, Noel Kulik Erin Centeio, Suzanna Dillon, Laurel Whalen, and Ronald Simpkins.

**Center for Social Work Research**

5447 Woodward; 313-577-4439; Fax 313-577-8770

Director: Joanne Sobeck, Ph.D.
Email: ab1350@wayne.edu
http://www.research.socialwork.wayne.edu

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 researcher-practitioner dialogue meetings. Learning communities are also provided for students interested in applying research methods to social work contexts.

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**

3089 Faculty/Admin. Bldg.; 313-577-2593; Fax: 313-577-6987
Email: M.Kruman@wayne.edu
http://www.cus.wayne.edu/citizenship
Twitter: @CitizenshipWSU

Director: Marc W. Kruman, Ph.D. 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**

5700 Cass Avenue, Room 2207 Academic/Administration Building;
Tel.: 313-577-2208; Fax: 313-577-1274
Director: Lyke Thompson, Ph.D.;
Email: ad5122@wayne.edu
Managing Director: Charo Hulleza, M.P.A.
Email: c.hulleza@wayne.edu
Email: CUSinfo@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. The Center is organized into eight specialized programs:

*Healthy Homes:* The Center’s Healthy Homes unit has focused on researching and facilitating collaborative solutions to addressing housing-based hazards to health. The Center is conducting national and local studies on housing risks and their amelioration. Families have been assisted through educational presentations and programs, and home assessments.

*Early Childhood and Disabilities:* The Center provides a variety of education program evaluations for the State of Michigan and local school districts throughout Michigan, particularly in special education. Many of these evaluation studies collect information from program participants using different techniques including surveys and focus groups.

*Urban Safety:* The Urban Safety unit employs the latest techniques to evaluate crime prevention projects including, but not limited to, showing hot spots of urban crime, determining safe routes for children to walk to school, and prisoner re-entry initiatives. Community partners include community development organizations, local police departments, and municipalities. The Center maintains numerous databases that include, but are not limited to, crime statistics, transportation, housing, Census data, and health.

*Governor’s and Mayor’s AmeriCorps Urban Safety:* The Center is operating the Governor’s and Mayor’s AmeriCorps Midtown Urban Safety program to improve resident public safety capacity in seven areas of Detroit. AmeriCorps members work with local non-profits, police departments, schools and residents to improve resident public safety by recruiting residents to establish block clubs, and using mobile mapping to tackle area problems. Members are also facilitating safety workshops, conducting home assessments, and boarding up dangerous buildings/cleaning up public private areas to promote neighborhood stabilization and safe routes to school.

*Urban Health:* The Urban Health unit partners with local agencies to conduct research and program evaluation on specific urban health issues. The unit specializes in projects geared to address obesity and emergency preparedness, and to assist people diagnosed with HIV and victims of trauma. However, unit researchers can also assist
organizations with health research/evaluation on other urban health topics.

Survey Research: The Survey Research unit engages in a variety of data collection techniques, including computer assisted telephone interviews, computer assisted self-administered interviews, community-based in-person interviews, focus groups, mail surveys, and web-based surveys. The unit has the capability to implement any and all phases of a project, from design and implementation to production of computerized data files and data analysis.

Evaluation Research: The Center provides program evaluation service to a range of organizations in the Detroit area and statewide. The support is structured to provide both process and outcome evaluation, as well as to provide training and capacity building on evaluation implementation.

Faculty Support: The Center regularly provides support for Wayne State faculty and administrative projects that include the Center as a project partner. The type of support varies by project, and ranges from project evaluation design to performing the lead role in grant submission (filling out all forms, developing overall budget, active development of grant narrative, etc.).

Cohn-Haddow Center for Judaic Studies

2311 Faculty/Admin. Bldg., 656 W. Kirby; 313-577-2679; Fax: 313-577-8136
Director: Howard Lupovitch, Ph.D.
Email: cohnhaddowcenter@wayne.edu
http://www.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.

Confucius Institute

5057 Woodward, Suite 11204; 313-577-0153; Fax: 313-577-6929
Director: John Brender, Ph.D.
Email: ci@wayne.edu
http://www.clas.wayne.edu/ci/

The Confucius Institute was launched in January 2008 and established with the mission of offering Chinese language and culture in southeast Michigan and to establish educational ties with China. With support from Hanban: Chinese Language International, there are over 100 Confucius Institutes in the United States and over 425 institutes worldwide in over 100 countries. While some Confucius Institutes are dedicated to Chinese art, music, distance learning and other specialty areas, the Confucius Institute at Wayne State University provides programmatic support to K-12 teachers and schools, the Wayne State University community, and to various professional groups.

K-12 programs include K-12 outreach, after school programs, a three-week summer camp, an annual Chinese quiz bowl, Chinese language testing, a two-week summer program in China, and grants for local school districts to establish or improve upon their Chinese language programs.

At the university level, the WSU-CI provides study-abroad opportunities in China, including year-long scholarships and a summer service learning program to rural areas. Additional campus programs include a Chinese language and culture learning-community, a weekly Confucius Cafe featuring lectures about China, and regularly-scheduled opportunities to practice Chinese with native speakers. At the professional level, the WSU-CI hosts an annual Chinese language and culture teaching conference, sponsors and produces TV documentaries, and offers forums on Chinese language and culture upon request. Since December 2012, the WSU-CI has produced short, weekly videos spotlighting Chinese idioms with corresponding supplementary videos to enhance Chinese language learning. The WSU-CI also works with its sister school, Huazhong University of Science and Technology and other Chinese universities, to promote exchange and joint degree programs.

C.S. Mott Center for Human Growth and Development

275 E. Hancock; 313-577-1337; Fax: 313-577-8554
Interim Director: Jay M. Berman, M.D.
Co-Director: Stephen A. Krawetz, Ph.D.

The Mott Center was established in 1973 for the purpose of conducting basic and applied research in the areas of biomedical reproductive sciences. Its mission is to advance research and research training in women's and children's health, focusing on reproductive biology, toxicology and perinatal medicine towards personalized reproductive medicine using a systems approach. The Center's objectives are to conduct basic and clinical research and research training in:

1. developmental biology, developmental disorders, preterm birth, preeclampsia, perinatal and neonatal physiology;
2. reproductive toxicology, teratology and the effects of drugs and environmental pollutants on pre- and post-natal life;
3. the etiology, mechanism and treatment of human genetic diseases;
4. developing new technologies in fertility/infertility and contraception;
5. changes and problems associated with reproductive and related mechanisms across the life cycle, as well as management and treatment relevant to these changes; and
6. undergraduate and postgraduate education in human growth and development.

The Center is strategically situated in a recently renovated state-of-the-art free standing physical plant that houses primarily faculty and staff from the Department of Obstetrics and Gynecology, School of Medicine. It is utilized to support the basic research activities of this department, as well as work in conjunction with departments across the University, including Physiology, Molecular Medicine and Genetics, Pediatrics, Computer Sciences, Psychiatry, the Merrill Palmer Skillman Institute as well as others. Obstetrics and Gynecology faculty at the Mott Center also work in close association with basic science and clinical departments within the School of Medicine and with Hutzel Women's Hospital and other clinical facilities in the Detroit Medical Center and the Henry Ford Health System. In addition, the Mott Center provides laboratory facilities to support the basic research activities of the Perinatology Research Branch (PRB) of the National Institute of Child Health and Human Development, National Institutes of Health, and houses the Wayne State University Applied Genomics Technology Center along with substantial epigenomics and bioinformatics capacity. In addition the Mott Center houses the new Clinical Research Center that serves the needs of the University's translational research program.

As the basic research hub of the Department of Obstetrics and Gynecology, the Mott Center also supports the graduate teaching activities of this department. The graduate program offers
interdisciplinary doctoral-degree training in the reproductive sciences with the Ph.D. degree earned through the Department of Physiology. This is an integrated Ph.D. program incorporating the teaching, research and physical resources of two departments Obstetrics and Gynecology and Physiology at the Wayne State University School of Medicine. The program’s integration into the Department of Obstetrics and Gynecology allows students the unique opportunity to obtain a Ph.D. in a clinical environment. Reproductive scientists and physiologists from both departments guide graduate students through their course work and research training. The curriculum focuses on education and research training in reproduction and development using a systems biology approach including genomics, proteomics, molecular biology and bioinformatics. Dissertation research is typically performed in the basic science laboratories at the Mott Center under the mentorship of Obstetrics and Gynecology faculty.

Damon J. Keith Center for Civil Rights
471 W. Palmer St.; 313-577-3620
Director: Peter J. Hammer, J.D., Ph.D.
http://www.keithcenter.wayne.edu/

The Damon J. Keith Center for Civil Rights memorializes the work of the Honorable Damon J. Keith, Senior Judge for the United States Court of Appeals for the Sixth Circuit, a civil rights icon, and one of our country’s leading jurists. The Keith Center is also a leading source for the legal history of the civil rights movement and the historic accomplishments of African American lawyers and judges. The Keith Center is further dedicated to research and community outreach addressing modern challenges to civil rights and racial justice.

The Keith Center seeks to honor Judge Keith by developing programs and opportunities that build upon his contributions to promoting equality and justice under law. The Keith Center promotes civil rights educational opportunities and encourages research on racial justice issues, including housing segregation, inadequate and segregated education, and unequal economic opportunities, with a particular focus on southeastern Michigan. It also contributes to the development of the next generation of civil rights advocates by providing opportunities to work with leading civil rights organizations and providing scholarships to Wayne Law students interested in pursuing civil rights law. The Keith Center partners with the Wayne Law clinics to engage the community directly through education initiatives and direct services.

The Keith Center recognizes the ongoing need for institutions that instill the virtues of social conscience and sensitivity to the challenges that remain in the fight for legal and social equality. The Keith Center is a national and international resource for identifying and defining the struggles that have occurred and addressing those that remain.

Developmental Disabilities Institute
Leonard Simons Building, Suite 268, 4809 Woodward Avenue; 313-577-2654 or 1-888-978-4334; Fax: 313-577-3770
Director: Barbara LeRoy, Ph.D.; Email: B_Le_Roy@wayne.edu
http://www.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.

Students from a wide range of disciplines are provided opportunities for interdisciplinary leadership education and participation in research, training, and technical assistance projects. Students may earn credits for designation as Trainees of the University Affiliated Program. These activities allow students to develop leadership skills and to gain skills in working with an interdisciplinary team. Interdisciplinary Education Programs of the Institute are developed as cooperative efforts between the Institute and academic units throughout Wayne State University and in collaboration with other universities in Michigan. The Graduate Certificate Program in Disabilities offers leadership education opportunities related to community integration and support of persons with disabilities; see Disabilities (Graduate Certificate [http://bulletins.wayne.edu/graduate/school-social-work/graduate-certificate-programs]). A number of other programs have been developed with academic programs throughout the University.

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
Walter P. Reuther Library, 5401 Cass Ave.; 313-577-5382; Fax: 313-577-5359
Director: Marick F. Masters, Ph.D.
Email: marickm@wayne.edu
http://www.clas.wayne.edu/fraser/

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 America. 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
2226 Faculty/Administration Building; 656 W. Kirby
Telephone: 313-577-5471; Fax: 313-577-2843
Director: Walter F. Edwards, Ph.D.
infrastructural support is at an all-time low. The population of the City
industry. Today, with its reduced tax base and aging population, Detroit's
of private home ownership. The 1970s-90s introduced global competition
Detroit's leadership in the automobile manufacturing industry during the
environment are:

The CURES Center focuses on how the stresses of urban, industrialized
The Institute of Environmental Health
Sciences

http://www.iehs.wayne.edu

The Institute of Environmental Health Sciences (IEHS) is the originator
of the Center for Urban Responses to Environmental Stresors (CURES).
The CURES Center focuses on how the stresses of urban, industrialized
life affect vulnerable populations. Two defining features of this urban
environment are:

1. the exposure to stressors that are especially prevalent in the urban
industrialized environment, including physico-chemical (e.g., air
pollution, heavy metals, polychlorinated biphenyls, maternal alcohol
exposure) and psychosocial (e.g., the stress experienced by first
responders to emergencies) stressors; and
2. the experiences of people who are particularly vulnerable to the
adverse effects of such exposures (e.g., children and adults of low
socio-economic status, older adults, first responders, and refugees).

Detroit's leadership in the automobile manufacturing industry during the
1950s-60s brought prosperity to this region with an unprecedented level
of private home ownership. The 1970s-90s introduced global competition
to car manufacturing and eroded Detroit's dominance in the automotive
industry. Today, with its reduced tax base and aging population, Detroit's
infrastructural support is at an all-time low. The population of the City

The CURES Center is to:
1. identify the chief environmental health threats to metropolitan
Detroit's urban communities and vulnerable populations;
2. develop well-integrated mechanistic, epidemiological, and
community-based research programs focused on the impact of urban
environmental exposure on human health;
3. characterize the molecular signatures of urban environmental
toxicant exposure using cellular, animal, and human models; and
4. discover and validate novel biomarkers of environmental disease
risk that can be applied to disease prevention and policy change
initiatives

With its unique emphasis on applying transdisciplinary team science to
achieve translational research gains in the field of urban environmental
public health, the CURES Center stands at the leading edge of the next
wave of paradigm-shifting advances in this field. The next generation of
"environmental health scientists" will most certainly be team scientists
who above all are supremely facile with applying transdisciplinary
approaches to tackle tough environmental health issues. Understanding
exposure to environmental stressors requires an integrated appreciation
of environmental contaminants in our physical environment, their
bioavailability, the means of personal exposure, and interactions of
contaminants with emotional stress and gene expression networks
that influence health outcomes in the individual. The new leaders in
this field will bring a transdisciplinary team approach to the research
table, offering much needed diversity of expertise in civil engineering,
industrial hygiene, urban planning, community engagement, toxicant
chemistry and bioavailability, mechanistic science, exposure science and
bio-monitoring, medicine, population science, psychiatry, social work,
geopolitics, computer modeling, genetics/epigenetics, bioinformatics and
yes, teamwork. The CURES Center is optimally positioned on "the ground
floor" of innovative team science opportunities that have the greatest
promise to realize the early detection, prevention and eventual eradication
of urban environmental disease in our lifetime.
Institute of Gerontology
87 E. Ferry St.; 226 Knapp Bldg.
Telephone: 313-577-2297; Fax: 313-664-2667
Director: Ingrid Guerra-López, Ph.D., A.B.P.P.
Email: iguerra@wayne.edu
http://www.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. Its mission is to:

1. sustain a premiere program of behavioral and social research with a focus on aging and health among diverse social groups in varying social settings;
2. collaborate with faculty across Wayne State University, the State of Michigan, and globally to stimulate research and teaching on gerontology issues;
3. prepare tomorrow's leaders in aging research through mentorship in its rigorous and nationally recognized pre- and post-doctoral training programs;
4. prepare practitioners, connect seniors and their families to current knowledge, and improve the lives of citizens through the Institute's colloquia series, continuing education, and community outreach education programs; and
5. build research, education, and outreach programs in aging that will stand the test of time by strengthening support of the Institute of Gerontology through community partnerships.

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.

Institute for Learning and Performance Improvement
399 Education Bldg.; 313-577-5139; Fax: 313-577-1693
Director: Zhuo-Hua Pan, Ph.D.
Email: iguerra@wayne.edu

The mission of the Institute for Learning and Performance Improvement (ILPI) is to improve community, organizational, and individual performance in the workplace. To this end, one of ILPI's aims is to bridge research and practice through the application of systematic and scientific processes for measurably improving performance. Therefore, ILPI offers rigorous performance improvement methodologies that are based on empirical evidence, and have the scalability and flexibility to fit a variety of contexts and situations in private and public sectors. ILPI personnel are internationally recognized experts in their fields with both theoretical and applied experience in a variety of areas including: needs assessment; performance, program, and impact evaluation; performance measurement and management systems, including dashboard design; instructional and performance design; change creation and change management; training and development, including interactive technologies; leadership coaching; and customer and employee surveys. The benefits targeted by ILPI are measured through several important indicators, including:

Organizational Benefits
- Increased personnel competence, productivity, efficiency, and profitability
- Reduced costs and improved image in the community and customer satisfaction

Community Benefits
- Improved quality of life, self-sufficiency and resident satisfaction
- Business and job creation
- Educational attainment and health promotion

This Institute was created in 1987 as a cooperative effort of the law faculties of Wayne State University, the University of Detroit Mercy and the University of Windsor in Ontario. The Institute offers an exceptional, rich curriculum for law students with courses and seminars in patent, copyright, trademark, computer and related technology, communications and media law and entertainment law. Law students who enroll in I.P.L.I. courses pay tuition to their home institution; Wayne State students receive transfer credit for I.P.L.I. courses taken at the other law schools. 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 (I.P.L.I.).

Labor Studies Center
3178 Faculty/Administration Building; 313-577-2191; Fax: 313-577-7726
Email: laborschool@wayne.edu
Director: Gayle Hamilton
http://clas.wayne.edu/labor/About-the-Labor-Studies-Center

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.

Ligon Research Center of Vision
Ligon Research Center of Vision, 4717 St. Antoine; 313-577-9136
Director: Gary Abrams, M.D.
Scientific Director: Zhuo-Hua Pan, Ph.D.
Email: ligoncenter@med.wayne.edu
http://www.kresgeeye.org/research/ligon-research-center-of-vision/

The Ligon Research Center of Vision was chartered in 1999. The Center was founded by a gift from philanthropist Robert Ligon, with the mission to restore vision to the blind. The Center is a collaborative effort between the departments of Ophthalmology and Anatomy & Cell Biology at Wayne State University, conducting interdisciplinary research on molecular biology, immunocytochemistry, electrophysiology, gene therapy, and animal behavior. In particular, the Center invented a novel strategy for vision restoration, the optogenetic gene therapy.

The severe loss of photoreceptive cells in inherited or acquired retinal degenerative diseases, such as retinitis pigmentosa or age-related degenerative diseases, such as retinitis pigmentosa or age-related
Macular degeneration, can result in partial or complete blindness. The optogenetic gene therapy strategy for restoring vision relays upon expressing a light sensitive protein, called channelrhodopsin-2 (ChR2) from green algae, to convert light-insensitive inner retinal neurons into photosensitive cells, thus restoring light sensitivity to retinas lacking photoreceptors. Using recombinant adeno-associated virus (rAAV) vectors to deliver ChR2, previous work in the Department of Anatomy/Cell Biology and the Ligon Center of Kresge Eye Institute has demonstrated the feasibility of restoring light sensitivity to the retinas of photoreceptor-deficient animal models. The technologies developed at Wayne State University have been licensed to a biotech company, RetroSense therapeutics. In August, 2015, RetroSense’s first optogenetic gene therapy drug application received clearance from the US Food and Drug Administration (FDA) for clinical trial.

To achieve better outcomes for the restored vision in patients, current research in the center focuses on the further development of the optogenetic technologies. The studies include improving the properties of optogenetic light sensors, developing virus-mediated targeting to specific inner retinal cell type(s), improving rAAV-mediated delivery and transduction efficiency in retinal neurons using non-human primate models.

**Manufacturing Information Systems Center**

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*Email:* aragowsky@aol.com  
*Director:* Arik Ragowsky, Ph.D.  
http://business.wayne.edu/article.php?id=105

The Manufacturing Information Systems Center was chartered in 2000. Its mission is to enhance and extend the Mike Ilitch School of Business’ involvement with Enterprise Resource Planning (ERP) systems research, and place it at the front of information systems and ERP research. The Center conducts interdisciplinary research on the use and value of ERP systems to the manufacturing industry and on methods of using information systems for management and competitive purposes. In addition, the center conducts research about the following topics: The gap between IT and the organizational managers and users, and the way to bridge this gap; Outsourcing versus insourcing of IT activities; and, Different trends in the IT industry like cloud computing.

Another goal of the Center is to link research to real life and to address the business community’s needs. For this purpose, the Center’s research staff collaborates with the business community and provides the respective participants with the research findings in order to help them to efficiently plan and use their ERP and other information systems for better operation, management, and competition. For this purpose, a new initiative with colleagues from Oakland University and Drexel University (Philadelphia) has been undertaken: an annual CIO (Chief Information Officer) Roundtable discussion. In consultation with some of the CIOs, the faculty members determine which topics will be covered at the next Roundtable. The faculty members undertake research on these topics, present opening comments on the topics, and then moderate the discussion while refraining from offering their own opinions. The purpose of the Roundtable is to let the CIOs discuss significant topics among themselves and to learn from each other. These discussions inform the faculty members’ course content and research efforts, enhancing student learning and leading to scholarly presentations/publications of both basic and applied research. To date, the Center has held eight Roundtable discussions; the participants have been very pleased and encouraged us to continue these meetings. As ERP systems have grown beyond the manufacturing sector, the Center has involved organizations from other industries, such as finance, green energy, and government. We published seven papers in different academic journals based on these Roundtable discussions, with additional papers in process.

The Center involves students in its activities. The Center organizes projects for students in real-life organizations where the students can practice the theory they learned in class. For instance, the Center worked with the Lear Corporation, conducting projects with fourteen of Lear’s plants. Students gained significant knowledge and experience, the participant plants learned how to better use information systems in general and ERP in particular, and the Center faculty members prepared academic papers based on these case studies.

These types of activities expand the visibility of the University and the Mike Ilitch School of Business in the business community, while benefiting businesses, students and faculty research activities.

**Merrill-Palmer Skillman Institute for Children and Families**

71 East Ferry Ave.; 313-664-2500; Fax: 313-664-2555  
*Interim Director:* Peter Lichtenberg, Ph.D.  
*Email:* mpsi@wayne.edu  
http://www.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.