The Clinical Laboratory Science programs encompass health professions dedicated to providing accurate diagnostic information to medical practitioners. The field offers challenging opportunities for people with aptitudes in the basic sciences and interest in a health care career. The programs at Wayne State University provide students with the technical knowledge and specialized skills necessary for laboratory professionals. Success in each program requires manual dexterity and visual acuity.

All programs consist of a pre-professional and a professional curriculum. The freshman and sophomore years constitute the pre-professional program comprising courses taught by the faculty of the College of Liberal Arts and Sciences. The professional program begins with the junior year and is taught by the faculty of the Department of Fundamental and Applied Sciences. The senior year consists of didactic course work and may include clinical experience in the laboratories of one of the affiliated hospitals.

Students are initially admitted to the Bachelor of Health Science concentration in laboratory science. Students desiring certification as a clinical laboratory scientist/medical technologist must apply for clinical rotation placement in the summer before the beginning of their senior year. Those accepted for clinical rotation placement will be transferred to the B.S. in Clinical Laboratory Science degree track for their senior year. Students who do not receive clinical placement remain in the B.H.S. program and graduate with the Bachelor of Health Science with a concentration in laboratory science degree.

These degrees require completion of 120-134 credits in course work that includes sufficient credits and courses to fulfill the University General Education Requirements (http://bulletins.wayne.edu/undergraduate/general-information/general-education) and the required courses and credits in the professional program curriculum to meet graduation requirements. The distribution of the total credits for the degree is between the pre-professional program and the professional program curriculum.

Accreditation: The Clinical Laboratory Science Program is accredited by the:

National Accrediting Agency for Clinical Laboratory Science (NAACLS)
5600 N. River Road, Suite 720
Rosemont, IL 60018 (773-714-8880).

Academic Regulations

Academic Standing
Students must demonstrate sufficient skills, knowledge, and professional behavior to be placed in a clinical experiential sequence. No student will be admitted to the clinical experiential courses with an overall p.g.a. of less than 2.75 in the professional courses. Students must achieve a 'C' (73%) or better in all professional courses before advancing to clinical courses. No senior student with a grade of less than 'C' in any clinical course will graduate with a B.S. in CLS, however, they may still graduate with the B.H.S. laboratory science concentration if those degree requirements are met, see below.

Academic Dismissal: Any student who receives an 'F' as a final grade will be subject to automatic dismissal. Students receiving less than 'C' (73%) in any course will not be considered for transfer to the CLS track. Only students who have a g.p.a. above 2.75 in professional courses will be considered for transfer to the B.S. in CLS for their senior year. Due to limited laboratory space, repeating a course will generally not be permitted.

Academic Probation: A student in the B.H.S. program who receives a second D-plus or lower in a professional course will be placed on probation. The third D-plus or lower grade will result in dismissal from the B.H.S. program. A student in the B.H.S. program whose g.p.a. falls below 2.0 in professional course work will be placed on academic probation and will be granted only one term to bring the g.p.a. to 2.0 or above. An overall g.p.a. of 2.0 or greater in professional program courses is required to graduate with a Bachelor of Health Science with a concentration in Laboratory Science degree.

Readmission: Students who have been dismissed for academic reasons and wish to be readmitted to the B.H.S. Laboratory Science concentration program will have the opportunity to do so only once. Students must receive a ‘C’ or above in all repeated courses in order to continue in the program. The decision to readmit a student will be on a competitive basis and readmission is not guaranteed. If, upon readmission, the student fails to meet the academic standards of the Program he/she will be dismissed and not readmitted at any time thereafter.

Any student who has been dismissed for academic reasons during the first admission to the program but has successfully completed clinical laboratory science course work with a grade of ‘C’ or better need not repeat these courses upon final readmission. All courses receiving a final grade less than C (C-minus, D, or F) must be repeated. It may be necessary for the student to change status from full-time to part-time in order to repeat the academically substandard work. If more than one year elapses from the time these courses were successfully completed, and the student is readmitted, it may be necessary to repeat the entire course of study. The faculty reserves the right to recommend repetition of courses for any student who is readmitted to the professional program and, in specific cases, may alter this policy and assign a directed study.

Change of Status: Any student wanting to have their status changed from full-time to part-time must comply with the following guidelines:

1. Request the status change no later than the ninth week of classes from the Clinical Laboratory Science Program Director.
2. Present a reason or reasons acceptable to the Clinical Laboratory Science Program as determined by the faculty, realizing that this decision will be final.
3. Continue as a part-time student under the predetermined curriculum as set forth by this Program.
4. Understand that this option may be limited by current and future enrollment; again, the decision of the faculty on this basis is final.

Health and Liability Insurance
Clinical instruction may be provided throughout the professional program along with didactic course work. A portion of the Senior Year may be spent in one or more assignments in selected clinical facilities throughout the metropolitan Detroit area and Michigan. Patient care involves inherent risk of exposure to potential diseases, particularly blood-borne pathogens, and the risk of possible mishaps in patient care to be placed in a clinical experiential sequence.
care. Therefore, all students are required to maintain health insurance coverage and liability insurance, both of which must be in effect prior to and during all periods in which the student is involved in clinical education. The student is responsible for the cost of the insurance and all other costs (such as travel, meals, and living expenses) associated with the clinical education portion of the program.

**Student Professional Activities:** All CLS students may participate in the local, state and national organizations of the American Society for Clinical Laboratory Science.

APOLLONI, KAREN K.: M.S.A, Central Michigan University; B.S., Wayne State University; Assistant Professor (Clinical)

BROWN, JANET M.: M.S., Ohio State University; B.S., Michigan Technological University; Clinical Assistant Professor

KRISHER, KAREN K.: Ph.D., B.S., University of Oklahoma; Clinical Associate Professor

STEWART, MARYANNE: ; Clinical Assistant Professor

- Clinical Laboratory Science (B.S.) (http://bulletins.wayne.edu/undergraduate/college-pharmacy-health-sciences/clinical-laboratory-science/clinical-laboratory-science-bs)
- Laboratory Science Concentration (B.H.S.) (http://bulletins.wayne.edu/undergraduate/college-pharmacy-health-sciences/clinical-laboratory-science/laboratory-science-concentration-bhs)

**CLS 2080 Clinical Laboratory Science Seminar Cr. 1**
Introduction to clinical laboratory sciences. Opportunities and responsibilities. Offered Fall, Winter.

**CLS 2990 Pre-professional Directed Study Cr. 1-3**
Independent study under faculty supervision. Offered Fall, Spring/Summer.
**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**CLS 3020 Hematology Lecture and Laboratory 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.

**Course Material Fees:** $75

**CLS 3040 Immunohematology Lecture and Laboratory Cr. 4**
**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Course Material Fees:** $130

**CLS 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, fluorometric, electroanalytical, and chromatographic methods to the clinical laboratory. Offered Fall.
**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**Course Material Fees:** $85

**CLS 3090 Introduction to Professional Practice Cr. 2**
Introduction to pre-professional and professional practice, education methodologies for the lab, intro to research in the field, ethics, and critical thinking in the lab. Offered Fall.
**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment limited to students in the BS in Clinical Lab Sciences or Bachelor of Health Science programs; enrollment limited to students in the Pharmacy and Health Sciences.

**CLS 3100 Basic Techniques: Microscopy 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.

**Course Material Fees:** $85

**CLS 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.

**Course Material Fees:** $85

**CLS 3330 Medical Terminology Cr. 1**
Study of medical terms in a body system approach. Review of anatomy and physiology. Offered Every Term.

**CLS 4000 Clinical Hematology Cr. 5**
Theory and principles for evaluation of the quantity, morphology and function of cellular components of blood. Offered Every Term.
**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**CLS 4010 Clinical Chemistry Cr. 3**
Biochemical analysis of blood and other body fluids to determine values of various chemical substances, using routine methods and automation. Offered Every Term.
**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**CLS 4020 Clinical Blood Bank Cr. 2**
Theory and principles involving antigen-antibody reactions of blood. Obtaining, storage and preparation of whole blood or blood components for infusion. Offered Every Term.
**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**CLS 4030 Clinical Microbiology Cr. 5-6**
Obtaining, culturing, identification and antibiotic sensitivity of microorganisms causing infection or infestation. Offered Every Term.
**Restriction(s):** Enrollment limited to students in the Pharmacy and Health Sciences.

**CLS 4040 Laboratory Operations Cr. 3**
Laboratory management issues and problems, with emphasis on the hospital setting. Includes management theory, interpersonal and technical skills, legal and regulatory issues, computers in laboratories, quality assessment and improvement, and healthcare marketing. Offered Yearly.
**Restriction(s):** Enrollment limited to students with a class of Junior or Senior; enrollment limited to students in the BS in Clinical Lab Sciences or Bachelor of Health Science programs; enrollment limited to students in the Pharmacy and Health Sciences.
CLS 4050 Clinical Immunology Cr. 1
Study of diseases related to diagnostic immunology. Offered Every Term.
Restriction(s): Enrollment limited to students in the Pharmacy and Health Sciences.

CLS 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 Fall.
Course Material Fees: $75

CLS 4230 Hematology II Cr. 2
Restriction(s): Enrollment limited to students in the Pharmacy and Health Sciences.
Course Material Fees: $85

CLS 4990 Professional Directed Study Cr. 1-8
Independent study under faculty supervision. Offered Every Term.
Restriction(s): Enrollment limited to students in the Pharmacy and Health Sciences.

CLS 5020 Pathophysiology for the Clinical Laboratory Cr. 3
Advanced pathophysiologic concepts including etiology, pathogenesis, and clinical manifestations, of commonly encountered altered health states in the adult human. Offered Fall.
Restriction(s): Enrollment limited to students in a BS in Clinical Lab Science or Bachelor of Health Science degrees.

CLS 5070 Clinical Pathology Correlation Cr. 2
Correlation of laboratory data and clinical history through the analysis of case studies. Offered Every Term.
Restriction(s): Enrollment limited to students in the Pharmacy and Health Sciences.

CLS 5500 Immunology and Serology Cr. 3
Lectures and studies; applications of immunology and serology in a lab setting, including relevance to human medicine. Offered Yearly.
Restriction(s): Enrollment limited to students in the Pharmacy and Health Sciences.
Course Material Fees: $140

CLS 5510 Diagnostic Microbiology I Cr. 4
Lectures and laboratory course in diagnostic microbiology, with a focus on the fundamentals of clinical bacteriology, and human infectious diseases. Offered Winter.
Restriction(s): Enrollment limited to students in the BS in Clinical Lab Sciences or Bachelor of Health Science programs; enrollment limited to students in the Pharmacy and Health Sciences.
Course Material Fees: $140

CLS 5520 Diagnostic Microbiology II Cr. 4
Lecture and laboratory course in diagnostic microbiology with a focus on clinical virology, mycology, and parasitology. Offered Fall.
Restriction(s): Enrollment limited to students in the BS in Clinical Lab Sciences or Bachelor of Health Science programs; enrollment limited to students in the Pharmacy and Health Sciences.
Course Material Fees: $140