Twin Cities Campus

Medical Laboratory Sciences B.S.

Allied-Medical Technology

Acad Health Sci, Assoc VP

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2020
- Required credits to graduate with this degree: 120
- Required credits within the major: 87
- This program is 9 terms (4½ years) long.
- This program requires summer terms.
- Degree: Bachelor of Science

The medical laboratory sciences BS degree program consists of two years of prerequisite courses and a two and a half year professional program sequence. Students are typically admitted to the professional program sequence after completing the prerequisites. Students may also be admitted directly into the final professional year after completion of the prerequisites and the upper division science requirements. Admission is once a year for the upcoming fall semester. The program uses an active learning hybrid program delivery format. Courses are offered through online modules, and other technology-enhanced delivery methods. Students then meet in person once per week for discussions, case studies, and problem solving exercises. The MLS program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

The program prepares students to be professional laboratory practitioners who are not only able to perform medical laboratory testing but analyze and critique the accuracy and validity of testing results for the improvement of patient care or research design. Graduates are eligible to take the American Society for Clinical Pathology Board of Certification examination and be certified as medical laboratory scientists. In addition to the medical laboratory setting, graduates of this program are qualified to work in a variety of other laboratory facilities such as research, environmental, biomedical, public health, or forensic laboratories. With the curriculum emphasis on developing quality understanding of laboratory methods and their diagnostic interpretation, our graduates are also excellent candidates for graduate research degree programs or graduate medical professional schools. Graduates of the MLS Program are also prepared to be leaders in healthcare delivery, medical laboratory professional societies, or as members of a research and development team.

Since it began in 1922 as the first educational program for medical laboratory personnel, the MLS Program at the University of Minnesota has been a leader in the profession. Faculty in the program published the first article on quality control in the clinical laboratory, developed the first medical laboratory technician program, and established the first master's degree in clinical laboratory sciences. The program is proud to provide students with the opportunity to learn from faculty who focus on clinical excellence, critical thinking, analysis, evaluation, scientific inquiry, leadership, and professional and community service. Current faculty perform laboratory-based research as well as scholarship in the field of teaching and learning. Many faculty also hold national and state offices in professional organizations, including the American Society for Clinical Laboratory Science (ASCLS) and the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS).

As a part of one of the nation's most extensive interdisciplinary academic health centers, the University of Minnesota's MLS program provides opportunities for interaction with students from other health professions as you prepare for a progressive career in laboratory medicine

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Students must complete 10 courses before admission to the program.

Freshmen students are usually admitted to pre-major status before admission to this major

A GPA above 2.0 is preferred for the following:

- 2.75 already admitted to the degree-granting college
- 2.75 transferring from another University of Minnesota college
- 2.75 transferring from outside the University

Minimum prerequisite science GPA of 2.75 and comply with the Technical Standard (Essential Functions) requirements of the program. Pre-admission interview and skills test. Admitted students are required to pass a criminal background check and submit proof of immunizations required for University of Minnesota Academic Health Center students.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

Required prerequisites
Preparatory Courses
Students must take one statistics course and either pre-calculus or calculus
MATH 1142 - Short Calculus [MATH] (4.0 cr)
or MATH 1271 - Calculus I [MATH] (4.0 cr)
STAT 3011 - Introduction to Statistical Analysis [MATH] (4.0 cr)
or EPSY 3264 - Basic and Applied Statistics [MATH] (3.0 cr)
Chemistry and Physiology
Track 1
CHEM 1061 - Chemical Principles I [PHYS] (3.0 cr)
CHEM 1062 - Chemical Principles II [PHYS] (3.0 cr)
CHEM 1065 - Chemical Principles I Laboratory [PHYS] (1.0 cr)
CHEM 1066 - Chemical Principles II Laboratory [PHYS] (1.0 cr)
CHEM 2301 - Organic Chemistry I (3.0 cr)
CHEM 2302 - Organic Chemistry II (3.0 cr)
PHSL 3051 - Human Physiology (4.0 cr)
or **Track 2 (Honors Option)**
CHEM 1071H - Honors Chemistry I [PHYS] (3.0 cr)
CHEM 1075H - Honors Chemistry I Laboratory [PHYS] (1.0 cr)
CHEM 1072H - Honors Chemistry II [PHYS] (3.0 cr)
CHEM 1076H - Honors Chemistry II Laboratory [PHYS] (1.0 cr)
CHEM 2331H - Honors Elementary Organic Chemistry I (3.0 cr)
CHEM 2332H - Honors Elementary Organic Chemistry II (3.0 cr)
PHSL 3051 - Human Physiology (4.0 cr)
BIOL 1009 - General Biology [BIOL] (4.0 cr)

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements.Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

All students must have liberal education requirements completed by the end of the spring semester before beginning the Year 4 curriculum. MICB 4131, LAMP 4177, and MLSP 1010 are highly recommended but not required for students pursuing a BS degree in medical laboratory sciences. In accordance with Minnesota law, a criminal background check is required of each student before clinical courses. The program arranges this background check. Students are placed in a variety of clinical settings during their clinical coursework which may be in Minnesota or surrounding states. Students are required to submit an exit survey as a condition of completion of the program.

Junior Year Courses
BIOC 3021 - Biochemistry (3.0 cr)
MLSP 5011W - Professional Issues in the Health Care Community [WI] (2.0 cr)
MLSP 5311 - Fundamental Biomedical Laboratory Techniques (4.0 cr)
MLSP 5511 - Principles of Immunobiology (3.0 cr)
GCD 3022 - Genetics (3.0 cr)
or BIOL 4003 - Genetics (3.0 cr)
MICB 3301 - Biology of Microorganisms (5.0 cr)
or VBS 2032 - General Microbiology With Laboratory (5.0 cr)

Senior Year Courses
MLSP 5012 - Educational Methods and Interprofessional Practice (1.0 cr)
MLSP 5013 - Scholarly Inquiry and Analysis in Medical Laboratory Sciences (1.0 cr)
MLSP 5111 - Concepts of Diagnostic Microbiology (3.0 cr)
MLSP 5112 - Application of Diagnostic Microbiology Principles (2.0 cr)
MLSP 5211 - Fundamentals in Hematology and Hemostasis (3.0 cr)
MLSP 5212 - Application of Hematology & Hemostasis Principles (1.0 cr)
MLSP 5313 - Chemical Analysis in Health and Disease (3.0 cr)
MLSP 5113 - Advanced Concepts in Diagnostic Microbiology (3.0 cr)
MLSP 5213 - Diagnostic Hematology (3.0 cr)
MLSP 5214 - Advanced Hematology Morphology (1.0 cr)
MLSP 5312 - Body Fluid Analysis (2.0 cr)

MLSP 5513 - Transfusion Medicine Principles and Methods (3.0 cr)
MLSP 5514 - Application of Transfusion Medicine Principles (2.0 cr)

Clinical Courses

These courses should be completed during the clinical rotations in the summer or fall term following the senior year, including clinical chemistry, hematology and coagulation, transfusion medicine, and microbiology.
MLSP 5014W - Laboratory Operations and Management in Health Care Systems [WI] (2.0 cr)
MLSP 5701 - Clinical Experience in Microbiology (2.0 cr)
MLSP 5702 - Clinical Experience in Hematology and Hemostasis (2.0 cr)
MLSP 5703 - Clinical Experience in Clinical Chemistry and Urinalysis (2.0 cr)
MLSP 5704 - Clinical Experience in Transfusion Medicine (2.0 cr)

Upper Division Writing Intensive within the Major

Students are required to take one upper division writing intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose a course from the following list. Both of these courses are required within the MLS major-specific requirements.
Take 0 - 1 course(s) from the following:
•MLSP 5011W - Professional Issues in the Health Care Community [WI] (2.0 cr)
•MLSP 5014W - Laboratory Operations and Management in Health Care Systems [WI] (2.0 cr)