MEDICAL LABORATORY SCIENCE

Undergraduate Degree Offered
B.S.M.L.S · Bachelor of Science in Medical Laboratory Science

Areas of Study
Chemistry; Hematology and Hemostasis; Immunohematology (Blood Bank); Microbiology, Parasitology and Mycology; Molecular Diagnostics; Urine and Body Fluid Analysis; Laboratory Operations (including phlebotomy)

Length of Program
Eleven (11) months · The program consists of 45 semester hours and begins in late May of each year. Graduates are eligible to apply for ASCP board certification as medical laboratory scientists upon completion of the program.

The MLS Program has three phases: student laboratory (13 weeks) on the Omaha or Kearney Campus (University of Nebraska at Kearney), first clinical rotation (17 weeks), and second clinical rotation (17 weeks) at assigned clinical locations. At each phase of the program, students must learn to integrate practice with theoretical knowledge and understanding.

Description
The MLS Program provides patient-centered educational opportunities, with theoretical knowledge and practical experience in hematology, clinical chemistry, microbiology, immunohematology (blood bank), immunology, molecular diagnostics and management. The program emphasizes laboratory principles and procedures, clinical significance and application, principles and practice of quality assurance, principles of laboratory management and supervision, safety, instructional methods, and computer applications.

Through affiliated programs, students have the option of obtaining their clinical education at one of several clinical affiliate sites (http://www.unmc.edu/alliedhealth/education/mls/about/affiliates.html). Students are not accepted into the MLS program if clinical experience cannot be guaranteed.

For consideration for admission, students must meet the essential requirements (http://www.unmc.edu/alliedhealth/education/mls/admission/essential-requirements.html) and complete prerequisites (http://www.unmc.edu/alliedhealth/education/mls/admission) by the end of the spring semester prior to enrolling at UNMC for their senior year.

Admission to the Program
MLS Admission Requirements
Enrollment in each program is limited and competitive. Evaluation of the qualifications of each applicant and the final selections for admission are made by the admissions committee of each program, which comprises program faculty and administration.

Required Minimum GPAs:
1. Cumulative GPA 2.5
2. Cumulative Science GPA 2.5 and/or most recently completed 20 biology/chemistry semester hours 2.5

Admission to the senior year of our Medical Laboratory Science Program requires the applicant to successfully complete the following prior to matriculation:

University / College Required Prerequisites
Successful completion of 77 semester hours (or equivalent quarter hours) at an accredited college or university. Only 66 semester hours (or equivalent quarter hours) can be accepted from a community college. A total of 11 semester hours (or equivalent quarter hours) must be completed at a 4-year regionally-accredited college or university. Upper level science courses taken at a 4-year institution are strongly recommended. Credits for courses in which grades below “C-” were received, are not accepted in fulfillment of the individual course prerequisites listed below. The 77 semester hours must include the following:

Biological Sciences: (16 semester hours) including
1. Microbiology (with lab preferred)
2. Genetics or Molecular Biology (CAHP offers an on-line course in Spring)
3. Immunology (CAHP offers an on-line course in Fall & Spring)

Chemistry: (14 semester hours) including
Minimum of two upper level (200 level or above) Chemistry courses. Upper level chemistry courses may include Organic Chemistry I, Organic Chemistry II, Biochemistry or Analytical Chemistry. Biochemistry with a lab recommended.

English Composition: (3 semester hours) ¹
Mathematics (3 semester hours) · Statistics is preferred.

¹ Advanced Placement:
The MLS Program will not accept AP, CLEP, or DANTES credit toward the English Composition, Mathematics, or Science requirements. Any AP, CLEP, or DANTES credit earned in these categories will be used as elective prerequisite credit only.

Suggested Electives
Physiology and Molecular Biology are strongly recommended. Additional recommended courses include Cell Biology, Introduction to Hematology, Pathogenic Microbiology, and Parasitology.

Evaluation of Applicants
Applicants are evaluated for admission on several levels, including, but not limited to:
1. Cumulative GPA
2. Math/Science GPA
3. Course load/course levels
4. Writing ability demonstrated through personal essay and narrative
5. Communication skills demonstrated during interview

An applicant may strengthen their application through job shadowing experience or direct observation of a clinical laboratory, additional coursework in science and mathematics and demonstrating academic ability through the completion of higher level courses with a laboratory component (such as the suggested electives).
How to Apply
For information on how to apply to the Medical Laboratory Science Program, visit the "How to Apply" website. For information on application deadlines and interview dates, visit the "Application Deadline" website.

Degree Requirements
All students must successfully complete the entire curriculum of the MLS Program in order to be considered for the Bachelor of Science degree in Medical Laboratory Science. Students must have completed a total of 120 semester credit hours to qualify for the baccalaureate degree from the University of Nebraska Medical Center.

Certification
Graduates of the UNMC Medical Laboratory Science Program are eligible to take a national examination administered by the Board of Certification (BOC), the separate, certifying body within the organizational structure of the American Society for Clinical Pathology (ASCP). Those who pass the exam in medical laboratory science may use the initials, MLS(ASCP)\textsuperscript{CM}, after their name to show they are proficient in their field.

Additional information is available by contacting
ASCP Board of Certification ([https://www.ascp.org/content/board-of-certification](https://www.ascp.org/content/board-of-certification))
Phone: 312.738.1336, ext. 1344
Email: boc@ascp.org

About the Profession
Medical Laboratory Scientists (formally known as Clinical Laboratory Scientists or Medical Technologists) are responsible for the development, performance, evaluation of laboratory testing that is needed in patient medical care and clinical research. They analyze samples of blood, tissue, and body fluids using cutting-edge technology and a variety of analytical techniques. They are at the forefront of healthcare guiding other health care professionals. 70-80\% of all medical decisions are based on laboratory results. A Bachelor of Science degree in Medical Laboratory Science will give you the ability to work in many different environments and several areas of expertise.

Medical Lab Scientists work in many environments:
- Hospitals
- Clinics
- Reference Laboratories
- Forensic Laboratories
- Research
- Veterinary Clinics
- Industry
- Public Health
- Pharmaceutical Laboratories

Areas of Expertise:
- Chemistry
- Hematology
- Immunology/ Serology
- Microbiology/ Virology
- Blood Banking
- Toxicology
- Urinalysis
- Molecular Diagnostics

Career Outlook
Medical laboratory scientists find challenging employment in a variety of laboratory settings. As vital members of the health care team, they enjoy assisting practitioners during the care, diagnosis and treatment of patients. Medical laboratory scientists can work in all areas of laboratories or specialize in one of several sections of a clinical laboratory such as chemistry, transfusion medicine, hematology, immunology, and microbiology.

You can be employed in hospitals, clinics, doctors' offices, research facilities, industry, public health institutions, forensic or pharmaceutical laboratories, and animal clinics.

National Outlook
- 8.7\% vacancy rate (2014)*
- 19.2\% expected retirement rate between 2014-19*
- 16\% job growth (2014-24)**


Advancement Opportunities
Medical laboratory scientists have many opportunities for advancement, with supervisory skills and with technical expertise in such areas as advanced immunology, cell marker technology, transplantation, toxicology, cancer research, and cytogenetics.

You also can obtain an advanced degree related to other fields of laboratory medicine including forensics, genetics, microbiology, medical informatics, public health, adult education, or business administration.

An advanced practice degree is in development: Doctorate in Medical Laboratory Science. Learn more about its development and scope of practice.

Other Opportunities
Medical laboratory scientists are very versatile in what positions they can fill within the lab and beyond its walls. For example, in industry, clinical laboratory scientists are needed for product development, research, marketing, sales, and quality assurance.

Curriculum
Note: Degree Completion Advancement (MLT to MLS) will have a different schedule from what is listed below, but are required to complete the listed courses.

The curriculum includes theory, practical application and technical performance experiences gained through lectures, clinical case studies, writing activities, small group work, independent study, and supervised laboratory experiences. The patient-oriented learning environment includes all areas of a full-service, accredited clinical pathology laboratory.

Required courses totaling 45 semester hours of credit include:
Fall

Completed May-August (Student Laboratory):
MLS 407  CLINICAL LABORATORY OPERATIONS  2
MLS 408  INTRODUCTION TO CLINICAL HEMATOLOGY  2
MLS 409  INTRODUCTION TO MEDICAL MICROBIOLOGY  2
MLS 410  INTRODUCTION TO CLINICAL CHEMISTRY AND URINALYSIS  1
MLS 411  INTRODUCTION TO CLINICAL IMMUNOHEMATOLOGY  1

Completed August-November (Clinical Rotation I):
MLS 413  CLINICAL ENDOCRINOLOGY AND TOXICOLOGY  1
MLS 414  CLINICAL CHEMISTRY AND URINALYSIS I  2
MLS 416  CLINICAL HEMATOLOGY I  2
MLS 418  CLINICAL MICROBIOLOGY I  2
MLS 420  CLINICAL IMMUNOLOGY, SEROLOGY AND MOLECULAR DIAGNOSTICS  2
MLS 422  CLINICAL IMMUNOHEMATOLOGY I  2
MLS 430  CLINICAL LABORATORY MANAGEMENT I  2
MLS 442  CLINICAL IMMUNOHEMATOLOGY LABORATORY PRACTICUM I  1
MLS 444  CLINICAL CORE LABORATORY PRACTICUM I  1
MLS 448  CLINICAL MICROBIOLOGY LABORATORY PRACTICUM I  1

Credit Hours  24

Spring

Completed November-May (Clinical Rotation II):
MLS 412  CLINICAL LABORATORY SCIENCE THEORY, APPLICATION AND CORRELATION  5
MLS 415  CLINICAL CHEMISTRY AND URINALYSIS II  2
MLS 417  CLINICAL HEMATOLOGY II  2
MLS 419  CLINICAL MICROBIOLOGY II  2
MLS 423  CLINICAL IMMUNOHEMATOLOGY II  2
MLS 431  CLINICAL LABORATORY MANAGEMENT II  3
MLS 443  CLINICAL IMMUNOHEMATOLOGY LABORATORY PRACTICUM II  1
MLS 445  CLINICAL CORE LABORATORY PRACTICUM II  1
MLS 449  CLINICAL MICROBIOLOGY LABORATORY PRACTICUM II  1

Credit Hours  19

Total Credit Hours  43

Academic Calendar

MLS 2019-2020 Academic Calendar

Fall 2019
May 21  Orientation
May 22  First Day of Fall Classes
May 27  Memorial Holiday (no classes)
May 27  Last Day to Drop/Add Courses for Fall
July 4  Independence Day (no classes)
September 2  Labor Day (no classes)
October 18  Last Day to WITHDRAW from Classes
November 28-30  Thanksgiving Break
December 20  Last Day of Fall

Spring 2020
January 13  First Day of Spring Classes
January 19  Last Day to Drop/Add Classes for Spring
January 20  Martin Luther King Holiday (No Classes)
February 10  Deadline for filing for May Graduation
March 22-29  Spring Break
April 1  Last Day to WITHDRAW from classes
May 8  Last Day of Spring