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 43 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.

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)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/)
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)**
Admission Requirements

Enrollment in each program is limited and competitive. The admissions committee of each program, composed of program faculty and administration, evaluates the qualifications of each applicant and makes the final selections for admission.

Required Minimum GPAs:
1. Cumulative GPA 2.5
2. Cumulative Science GPA 2.5 and/or 20 most recently completed 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. [Exceptions to this policy due to COVID-19 (https://www.unmc.edu/alliedhealth/_documents/cahp-interim-admissions-policy-grades-of-pass.pdf)] The 77 semester hours must include the following:

**Biological Sciences (16 semester hours) including:**
1. Microbiology (with lab preferred)
2. Immunology (CAHP offers an on-line course (https://www.unmc.edu/alliedhealth/courses/mls.html) 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)
- Mathematics (3 semester hours) - Statistics is preferred.

Advanced Placement:
A maximum of six College Level Examination Program (CLEP), Advanced Placement (AP) and/or Defense Activity for Non-Traditional Support (DANTES) semester hours will be accepted for transfer. Any CLEP, AP or DANTES semester hours will not be accepted towards prerequisite science courses.

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. Science GPA or most recently completed 20 biology/chemistry hours
3. Course load/course levels
4. Writing ability demonstrated through personal essay and narrative, and writing skills demonstrated during interview
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).

Get complete application details on How to Apply (https://www.unmc.edu/alliedhealth/education/mls/admission/apply.html).

Application Deadline (https://www.unmc.edu/alliedhealth/education/deadlines.html)

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:

<table>
<thead>
<tr>
<th>Fall</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>MLS 407</td>
<td>CLINICAL LABORATORY OPERATIONS</td>
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<tr>
<td>MLS 408</td>
<td>INTRODUCTION TO CLINICAL HEMATOLOGY</td>
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Completed May-August (Student Laboratory):
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 LABATORY 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 2020-2021 Academic Calendar

Fall 2020
May 19  Orientation
May 20  First Day of Fall Classes
May 25  Memorial Holiday (no classes)
May 26  Last Day to Drop/Add Courses for Fall
July 3  Independence Day Observed (no classes)
September 7  Labor Day (no classes)
October 16  Last Day to WITHDRAW from Classes

November 26-28  Thanksgiving Break
December 18  Last Day of Fall

Spring 2021
January 11  First Day of Spring Classes
January 17  Last Day to Drop/Add Classes for Spring
January 18  Martin Luther King Holiday (No Classes)
February 10  Deadline for filing for May Graduation
March 14-21  Spring Break
April 2  Last Day to WITHDRAW from classes
May 7  Last Day of Spring