

MEDICAL LABORATORY SCIENCE

Medical laboratory scientists use analytical procedures and complex instruments to perform tests on blood and body fluids that assist physicians in patient diagnosis and treatment, disease monitoring and prevention. Because the tests performed are so vital in medical treatment, the medical laboratory scientist must know how to perform these tests with scientific precision and accuracy, but also be well educated in the underlying scientific principles and clinical significance of the results.

Background Information

Students interested in pursuing medical laboratory science should have an interest and aptitude in the sciences, particularly chemistry and biology. Laboratory work plays a vital role in the daily routine of the medical laboratory scientist and, while usually not having direct contact with patients, these individuals enjoy being a vital member of the health care team. Clinical chemistry, hematology, microbiology, urinalysis, immunohematology and immunology are the principle areas of practice in the laboratory. Besides laboratory testing, a medical laboratory scientist may also monitor test quality, supervise personnel, conduct research and develop new tests and methodologies.

Career Opportunities

Certified medical laboratory scientists may readily find employment throughout the United States in hospitals, medical and diagnostic laboratories, and other healthcare services. According to the U.S. Department of Labor Bureau of Labor Statistics, employment of clinical laboratory workers is expected to grow faster than average for all occupations through 2022. Mean annual earnings are \$50,550 (www.bls.gov; National Occupational Employment and Wage Estimates, May 2015).

The Program

North Dakota State University's Bachelor of Science degree, major in medical laboratory science, includes three years of academic course work on campus followed by an 11 to 12 month full-time professional-level internship in an affiliated accredited hospital school of medical laboratory science. Graduates are eligible to take a national certification exam offered by the American Society for Clinical Pathology Board of Certification. To remain certified, medical laboratory scientists must earn continuing education credits.

College academic work includes college algebra, biological sciences, chemistry and statistics, along with humanities and social science electives. Transfer students need to successfully complete a minimum of 20 resident credits at NDSU prior to beginning an internship. The full-time internship consists of classroom and clinical bench instruction in clinical chemistry, hematology, immunohematology, microscopy/urinalysis, microbiology, serology, phlebotomy, education, management, and research methods.

In order to participate in a medical laboratory science educational program, students must be able to comply with program-designated essential functions, or request reasonable accommodations to meet these essential functions. Requirements include a sound intellect, good motor skills, eye-hand coordination and dexterity, effective communication skills, visual acuity to perform macroscopic and microscopic analyses, or read procedures and graphs, and behavioral skills such as organization, time management and good judgment, even in emergency situations.

Internship Selective Admission

Admission to internship programs is competitive. Criteria for admission are established by each hospital program and generally include the student's cumulative and science grade point average (GPA), courses completed, related experience, references and an interview. In addition, students must comply with criminal background and student conduct requirements.

To assist students, NDSU maintains affiliation with seven medical laboratory science programs. These include: Sanford Medical Center (Fargo, ND), Mercy Medical Center (Sioux City, IA), Nebraska Methodist University (Omaha, NE), St. Luke's College (Sioux City, IA), St. Luke's Hospital (Cedar Rapids, IA), Mercy College of Health Sciences (Des Moines, IA), and Colorado Center for Medical Laboratory Science (Aurora, CO). All affiliated programs are accredited by the National Accrediting Agency for Clinical Laboratory Science.

It is highly recommended that students interested in this major meet with a medical laboratory science advisor for more information about internship admission at least one year prior to their anticipated internship application. Application occurs annually in the fall.

For Further Information

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Sample Curriculum

Credits	General Education
	First Year Experience
1	UNIV 189 - Skills for Academic Success
	Communication
3	COMM 110 - Fundamentals of Public Speaking
3, 3	ENGL 110, 120 - College Composition I, II
3	English Upper Level Writing Course
	Quantitative Reasoning
3	STAT 330 - Introductory Statistics
	Science & Technology
4	BIOL 220, 220L - Human Anatomy and Physiology I and Lab
4	CHEM 121, 121L - General Chemistry I and Lab
3 or 4	CSCI 114 - Microcomputer Packages <i>or</i> CSCI 116 - Business Use of Computers
6	Humanities & Fine Arts
6	Social & Behavioral Sciences
2	Wellness
-	Cultural Diversity
-	Global Perspective
41-42	TOTAL
Credits	Major Requirements
4	BIOC 460, 460L - Foundations of Biochemistry and Molecular Biology I and Lab
4	BIOL 150, 150L - General Biology I and Lab
4	BIOL 221, 221L - Human Anatomy and Physiology II and Lab
4	CHEM 122, 122L - General Chemistry II and Lab
6-7	CHEM 341, 341L - Organic Chemistry I and Lab and CHEM 342 - Organic Chemistry II <i>or</i> CHEM 240 - Survey of Organic Chemistry and BIOC 461 - Foundations of Biochemistry and Molecular Biology II
3	MATH 103 - College Algebra
5	MICR 350, 350L - General Microbiology and Lab
5	MICR 460, 460L - Pathogenic Microbiology and Lab
2	MICR 463 - Clinical Parasitology
3	MICR 470 - Basic Immunology
2	MICR 471 - Immunology and Serology Lab
1	MLS 200 - Introduction to Medical Laboratory Science
2	MLS 435 - Hematology
30	MLS 496 - Internship
4	ZOO 315, 315L - Genetics and Lab
2	Degree Electives
81-82	TOTAL
122-123	CURRICULUM TOTAL

This sample curriculum is not intended to serve as a curriculum guide for current students, but rather an example of course offerings for prospective students. For the curriculum requirements in effect at the time of entrance into a program, consult with an academic advisor or with the Office of Registration and Records.

<https://bulletin.ndsu.edu/undergraduate/programs/>