

# Medical Laboratory Science

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## Department Information

- **Department Location:**  
Sudro Hall
- **Department Phone:**  
701-231-8713
- **Department Web Site:**  
[www.ndsu.edu/alliedsciences/](http://www.ndsu.edu/alliedsciences/)
- **Degrees Offered:**  
B.S.
- **Official Program Curriculum:**  
[bulletin.ndsu.edu/undergraduate/program-curriculum/medical-laboratory-science/](http://bulletin.ndsu.edu/undergraduate/program-curriculum/medical-laboratory-science/)

Medical laboratory scientists use analytical procedures and the latest biomedical instruments to perform laboratory 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 principles and clinical significance of the results. Laboratory work plays a vital role in the daily routine of the medical laboratory scientist and, while usually not having direct contact with patients, the MLS enjoys being a crucial member of the health care team. Clinical chemistry, hematology, microbiology, urinalysis, immunohematology, and immunology are the principle practice areas for an MLS working in a medical laboratory. In addition to laboratory testing and analysis, an MLS may also monitor test quality, supervise personnel, conduct research and develop new tests and methodologies. Certified medical laboratory scientists readily find employment throughout the country in hospitals, medical and diagnostic laboratories, and other healthcare services. According to the U.S. Department of Labor Bureau of Labor Statistics (<https://www.bls.gov>), employment of medical laboratory workers is expected to grow faster than average for all occupations through 2026. This increase is attributed to an aging population leading to a greater need to diagnose medical conditions, such as cancer or type 2 diabetes, through laboratory procedures.

A Bachelor of Science degree, major in Medical Laboratory Science, includes three years of academic courses on campus followed by an 11-12 month full-time professional-level class and clinical internship in an affiliated school of medical laboratory science. Graduates are eligible to take the national MLS certification exam administered by the American Society for Clinical Pathology Board of Certification (ASCP BOC). NDSU graduates have enjoyed excellent employment opportunities and pass rates on the ASCP BOC exam.

Students interested in pursuing MLS should have an interest and aptitude in the sciences, particularly chemistry and biology. College academic courses include college algebra, biology, microbiology, general and organic chemistry, biochemistry, and statistics, along with general education electives. The full-time professional internship consists of classroom and clinical bench instruction in clinical chemistry, hematology, immunohematology, microscopy/urinalysis, microbiology, serology, phlebotomy, education, management, and research methods.

Students who have completed the prerequisite courses on campus and meet requirements for grades and grade point averages may be eligible to apply for the professional-level internship which occurs onsite within an affiliated hospital-based MLS program. NDSU maintains affiliation with the following hospital-based MLS programs: Sanford Health (Fargo, ND), Mercy Medical Center (Sioux City, IA), Nebraska Methodist Hospital (Omaha, NE), St. Luke's College (Sioux City, IA), St. Luke's Hospital (Cedar Rapids, IA), and the Colorado Center for Medical Laboratory Science (Aurora, CO). All affiliated programs are accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS). Application to the internship occurs annually in the fall. Admission to hospital programs is selective. Admission criteria is established by each hospital internship program and generally includes academic performance at the university level, cumulative and science GPAs (a minimum of 2.50-3.00 is required and varies by hospital program), courses completed, references, related experience, an interview, and compliance with criminal background and student conduct requirements. To participate in the MLS internship, students must be able to comply with program-designated essential functions or request reasonable accommodations to meet these. Essential functions include a sound intellect, good motor skills, eye-hand coordination and dexterity, effective communication skills, visual acuity to perform macroscopic and microscopic analyses and read procedures and graphs, and behavioral skills such as organization, time management, and good judgement even in emergency situations.

Information about the profession, curriculum, internship, and advising contacts are available from the Department of Allied Sciences (<https://www.ndsu.edu/alliedsciences>). It is highly recommended that students interested in MLS meet with the MLS advisor to discuss degree and major requirements, internship admission, and create an individualized plan of study at least one year prior to anticipated internship application.

## Plan of Study

Please note this is a sample plan of study and not an official curriculum. Actual student schedules for each semester will vary depending on start year, education goals, applicable transfer credit, and course availability. Students are encouraged to work with their academic advisor on a regular basis to review degree progress and customize an individual plan of study.

First Year				
Fall	Credits	Spring	Credits	
BIOL 150	3	CHEM 122	3	
BIOL 150L	1	CHEM 122L	1	
CHEM 121	3	COMM 110	3	
CHEM 121L	1	CSCI 114	3	
CHP 190	2	Global Perspectives (G)	3	
ENGL 120*	3	Humanities & Fine Arts (A)	3	
MATH 103	3			
	16		16	
Second Year				
Fall	Credits	Spring	Credits	
BIOL 220	3	BIOL 221	3	
BIOL 220L	1	BIOL 221L	1	
CHEM 341**	3	CHEM 342**	3	
CHEM 341L**	1	MICR 460	3	
MLS 200	1	MICR 460L	2	
MICR 350	3	STAT 330	3	
MICR 350L	2			
Wellness (W)	2			
	16		15	
Third Year				
Fall	Credits	Spring	Credits	
BIOC 460	3	Cultural Diversity (D)	3	
BIOC 460L	1	Humanities & Fine Arts (A)	3	
BIOL 315	3	MLS 435	2	
BIOL 315L	1	MICR 463	2	
MICR 470	3	Social & Behavioral Sciences (B)	3	
MICR 471	2	Upper Division Writing (C; 300-400 level)	3	
Social & Behavioral Sciences (B)	3			
	16		16	
Fourth Year				
Fall	Credits	Spring	Credits	Summer Credits
MLS 496***	12	MLS 496***	12	MLS 496*** 6
	12		12	6

Total Credits: 125

\* All students are required to successfully earn credit for Engl 110 and Engl 120. Enrollment is based on English Placement. Upon completion of Engl 120 with a "C" grade or higher, students will be awarded placement credit (4) for Engl 110.

\*\* Students have the option to complete Chem 240, Bioc 460, Bioc 460L, & Bioc 461 in place of Chem 341, Chem 341L, Chem 342, Bioc 460 & Bioc 460L.

\*\*\* Credits earned in an affiliated, NAACLS accredited hospital program; one year in length, including one summer session.