

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. 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.

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 a national 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.

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 GPA and grade requirements may be eligible to apply for the professional class and clinical internship. Application to the internship occurs annually in the fall. NDSU maintains affiliation agreements with seven hospital-based MLS programs that provide the necessary internship. Affiliated programs are accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS). Admission to hospital programs is selective. Specific admission criteria is established by each hospital internship program and generally includes academic performance at the university level, grade point averages (a minimum GPA of 2.50-3.00 is required and varies by hospital program), references, related experience, compliance with essential functions, and an interview. Students must also comply with criminal background and student conduct requirements.

During the professional internship, specific letter grades are assigned by the hospital program, recorded on the hospital program's official transcript, and are not included in calculation of NDSU's grade point average. Official transcripts are available upon written request from the hospital program. An NDSU grade of 'Pass' is awarded for successful completion of each term of the internship.

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/major requirements, internship admission and create a plan of study at least one year prior to anticipated internship application.

Major Requirements

Medical Laboratory Science Major

Degree Type: B.S.

Required Degree Credits to Graduate: 120

General Education Requirements for Baccalaureate Degree

- A list of approved general education courses is available here (<http://bulletin.ndsu.edu/past-bulletin-archive/2017-18/academic-policies/undergraduate-policies/general-education/#genedcoursestext>).
- General education courses may be used to satisfy requirements for both general education and the major, minor, and program emphases, where applicable. Students should carefully review the major, minor, and program emphases requirements for minimum grade restrictions, should they apply.

Code	Title	Credits
Communication (C)		12
ENGL 110	College Composition I	
ENGL 120	College Composition II	
COMM 110	Fundamentals of Public Speaking	
Upper Division Writing [†]		
Quantitative Reasoning (R) [†]		3
Science and Technology (S) [†]		10
Humanities and Fine Arts (A) [†]		6
Social and Behavioral Sciences (B) [†]		6
Wellness (W) [†]		2
Cultural Diversity (D) ^{††}		

Global Perspectives (G) ^{†}**

Total Credits	39
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* May be satisfied by completing courses in another General Education category.

† May be satisfied with courses required in the major. Review major requirements to determine if a specific upper division writing course is required.

Major Requirements

Code	Title	Credits
Medical Laboratory Science Major Requirements		
CHP 190	Critical Thinking and Academic Success	2
MLS 200	Introduction to Medical Laboratory Science	1
MLS 435	Hematology	2
MLS 496	Field Exp/Internship	30
Professional education (internship) within an accredited affiliated school of medical laboratory science includes the capstone experience.		
Related Courses Required:		
BIOC 460 & 460L	Foundations of Biochemistry and Molecular Biology I and Foundations of Biochemistry I Laboratory	4
BIOL 150 & 150L	General Biology I and General Biology I Laboratory	4
BIOL 220 & 220L	Human Anatomy and Physiology I and Human Anatomy and Physiology I Laboratory (May satisfy a general education category S)	4
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory (May satisfy a general education category S)	4
BIOL 221 & 221L	Human Anatomy and Physiology II and Human Anatomy and Physiology II Laboratory	4
CHEM 122 & 122L	General Chemistry II and General Chemistry II Laboratory	4
CSCI 114 or CSCI 116	Microcomputer Packages (May satisfy a general education category S) Business Use of Computers	3
MATH 103	College Algebra (or higher level; excluding MATH 104)	3
MICR 350 & 350L	General Microbiology and General Microbiology Lab	5
MICR 463	Clinical Parasitology	2
MICR 460 & 460L	Pathogenic Microbiology and Pathogenic Microbiology Laboratory	5
MICR 470	Basic Immunology	3
MICR 471	Immunology and Serology Laboratory	2
STAT 330	Introductory Statistics (May satisfy a general education category R)	3
ZOO 315 & 315L	Genetics and Genetics Laboratory	4
Select one group of the following:		6-7
Group One:		
CHEM 341 & 341L	Organic Chemistry I and Organic Chemistry I Laboratory	
CHEM 342	Organic Chemistry II	
Group Two:		
CHEM 240	Survey of Organic Chemistry	
BIOC 461	Foundations of Biochemistry and Molecular Biology II	
Total Credits		95-96

Degree Requirements and Notes

- All required courses must be completed with a grade of 'C' or above. All students must maintain a semester GPA of 2.0 or above for each semester in the College. A student who fails to meet this standard for two successive or three non-successive semesters may be terminated from enrollment in the College.

- Completion of the prerequisites does not guarantee a student internship. Selection of interns is competitive. Please consult your MLS advisor for more information.