

Medical Laboratory Science

Medical Laboratory Science Major

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 coursework on campus followed by an 11-12 month full-time professional class and clinical experience 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).

College academic coursework includes college algebra, biology, microbiology, general and organic chemistry, biochemistry, and statistics, along with general education electives. The full-time professional hospital program 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 course work on campus and meet the GPA requirements established by the affiliated hospital program may be eligible to apply for the professional-level class and clinical. Transfer students must complete a minimum of 20 resident credits at NDSU prior to the start of the professional program to be eligible to apply. NDSU has affiliation agreements with seven hospital-based MLS programs that provide the necessary professional-level education. Affiliated programs are accredited by the National Accrediting Agency for Clinical Laboratory Science (NAACLS). Admission to hospital programs is competitive. Criteria for admission is established by each hospital program and generally includes academic performance at the university level, references, related experience, compliance with essential functions, and an interview. In addition, students must comply with criminal background and student conduct requirements.

During the professional program, 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 (<http://www.ndsu.edu/alliedsciences>).

Major Requirements

Medical Laboratory Science Major

Degree Type: B.S.

Required Degree Credits to Graduate: 122

General Education Requirements

First Year Experience (F):

UNIV 189	Skills For Academic Success (Students transferring in 24 or more credits do not need to take UNIV 189.)	1
----------	---	---

Communication (C):

ENGL 110	College Composition I	3
ENGL 120	College Composition II	3
One Course in Upper Level Writing. Select one of the following:		3
ENGL 320	Business and Professional Writing	
ENGL 321	Writing in the Technical Professions	
ENGL 322	Creative Writing I	
ENGL 323	Creative Writing II	
ENGL 324	Writing in the Sciences	
ENGL 325	Writing in the Health Professions	
ENGL 358	Writing in the Humanities and Social Sciences	
ENGL 459	Researching and Writing Grants and Proposal	
COMM 110	Fundamentals of Public Speaking	3

Quantitative Reasoning (R):

STAT 330	Introductory Statistics	3
----------	-------------------------	---

Science & Technology (S):

BIOL 220 & 220L	Human Anatomy and Physiology I and Human Anatomy and Physiology I Laboratory	4
CHEM 121 & 121L	General Chemistry I and General Chemistry I Laboratory	4
CSCI 114 or CSCI 116	Microcomputer Packages or Business Use of Computers	3-4

Humanities & Fine Arts (A): Select from current general education list 6

Social & Behavioral Sciences (B): Select from current general education list 6

Wellness (W): Select from current general education list 2

Cultural Diversity (D): Select from current general education list

Global Perspectives (G): Select from current general education list

Total Credits 41-42

Major Requirements

General Education Requirements 40

Medical Laboratory Science Major Requirements

MLS 111	Intro/Medical Lab Science	1
MLS 435	Hematology	2
MLS 496	Field Exp/Internship	6
MLS 496	Field Exp/Internship	12
MLS 496	Field Exp/Internship	12

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 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
MATH 103 or MATH 105	College Algebra (or higher level) Trigonometry	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
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	
Degree Electives: Potential of 2 credits to reach 122		2
Total Credits		122-123

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