

# MEDICAL LABORATORY SCIENCE BS

## Medical Laboratory Science

College of Science, Engineering & Technology

Department of Biological Sciences

246 Trafton Science Center S • 507-389-2417

Website: [www.mnsu.edu/dept/biology](http://www.mnsu.edu/dept/biology)

Director: Lois Anderson

The four-year medical laboratory science curriculum leads to the degree of Bachelor of Science in medical laboratory science. The first three years are spent at the University. The fourth year is spent at one of the affiliated hospital schools of medical laboratory science. Upon successful completion of this year, the BS degree is awarded by the University and graduates are then eligible to take a certifying examination.

Because the medical laboratory science curriculum closely parallels that of other majors, such as biology, students from other majors are encouraged to apply.

### Academic Map/Degree Plan at [www.mnsu.edu/programs/#All](http://www.mnsu.edu/programs/#All)

#### POLICIES/INFORMATION

**Admission to Major** is granted by the department. Minimum university admission requirements are:

- a minimum of 32 earned semester credit hours.
- a minimum cumulative GPA of 2.00 ("C").

Contact the department for application procedures.

Students should contact the director of the Medical Laboratory Science program early in their college career for admission to the program, for academic and career counseling, and for information on the process and standards for admission to the professional curriculum, including registration procedures. Because enrollment in the fourth year is limited by the size of classes in the affiliated hospital schools, admission to the program does not ensure admission to the fourth year of the curriculum. Admission into the fourth year hospital clinical internship is competitive.

Students majoring in Medical Laboratory Science have an advisor from their area of interest assigned to them. Questions and concerns pertaining to advising and the assignment of advisors can be answered by Ken Adams, SRC, 125 Trafton Science Center, telephone 507-389-1521.

**GPA Policy.** A GPA of 2.0 is required in both sciences courses and cumulative coursework.

**Probation.** Refer to the College regarding required advising for students on academic probation.

**P/N Grading Policy.** No P/N grades are accepted toward the major except BIOL 175.

Agencies and clinical site adjunct faculty participating in the Medical Laboratory Science program include, but not limited to: Hennepin County Medical Center, Minneapolis, MN, James Fink, M.D., Ashley Zawacki, MS, MLS(ASCP); Mercy College of Health Sciences CLS Program, Des Moines, IA, Kyla Dippold, MS, MT (ASCP), CLS (NCA); St. Luke's Hospital, Cedar Rapids, IA, Lindsey Mullenbach, MLS (ASCP), Lileah Harris, M.D.; University of Minnesota, Minneapolis, MN, Janice Conway-Klaasen, Ph.D., MT(ASCP) SM; New York Methodist Hospital, Brooklyn, NY, Lori Burkard, MS, MT (ASCP), Lynn Jones, MT (ASCP), Rabia Mir, M.D.; Mercy Medical Center, Sioux City, IA, Mary Smith, MS, MLS (ASCP), Askar Galbani, M.D.; Sanford USD Medical Center, Sioux Falls, SD, Michael Geis, M.D., Renee Rydell, MBA, MS, MT (ASCP); St. Luke's College, Sioux City, IA, James Quesenberry, MD, Pamela Briese, MS, MT (ASCP), SC. Students accepted into the clinical internship will be responsible for: Proof of Medical/Hospitalization/Health Insurance; Health Physical Exam; Tuberculosis (TB) testing; and Proof of Immunization which may include the following: Hepatitis B, Measles, Mumps, Rubella, Tetanus, Chickenpox (Varicella), and Influenza. Students may also be required to submit to Drug Screen Testing. Internship sites are required by law to do Background Checks on all students admitted to their medical laboratory science programs.

## MEDICAL LABORATORY SCIENCES BS

Degree completion = 120 credits

#### Required General Education

BIOL 270	Microbiology (4)
CHEM 201	General Chemistry I (5)
(choose 4 credits)	
MATH 112	College Algebra (4)
MATH 115	Precalculus Mathematics (4)
MATH 121	Calculus I (4)
(choose 4 credits)	
BIOL 105	General Biology I (4)
BIOL 105W	General Biology I (4)

#### Major Common Core

BIOL 106	General Biology II (4)
BIOL 175	Orientation to Clinical Laboratory Science (1)
BIOL 211	Genetics (4)
BIOL 220	Human Anatomy (4)
BIOL 330	Principles of Human Physiology (4)
BIOL 430	Hematology/Introduction to Immunology (4)
CHEM 202	General Chemistry II (5)
CHEM 320	Organic Chemistry I (5)
CHEM 360	Principles of Biochemistry (4)

#### Major Restricted Electives

(choose 3 credits)	
HLTH 475	Biostatistics (3)
STAT 154	Elementary Statistics (3)
(choose 30-39 credits)	
Internship credits are determined in consultation with advisor.	
MEDT 410	Clinical Hematology I (1-10)
MEDT 411	Clinical Immunohematology I (1-10)
MEDT 412	Clinical Immunology I (1-10)
MEDT 413	Clinical Chemistry I (1-10)
MEDT 414	Clinical Microbiology I (1-10)
MEDT 415	Clinical Microscopy I (1-10)
MEDT 416	Clinical Hematology II (1-10)
MEDT 417	Clinical Immunohematology II (1-10)
MEDT 418	Clinical Chemistry II (1-10)
MEDT 419	Clinical Microbiology II (1-10)
MEDT 420	Clinical Microscopy II (1-10)
MEDT 499	Individual Study (1-6)

#### CHOOSE 1 CLUSTER

Hennepin County Medical Center, Minneapolis, MN	
BIOL 380	Blood Banking/Urinalysis (3)
BIOL 475	Medical Microbiology (4)

St. Luke's Hospital, Cedar Rapids, IA / St. Luke's College, Sioux City, IA / Mercy College of Health Science, Des Moines, IA / Sanford USD Medical Center, Sioux Falls, SD / New York Methodist Hospital, Brooklyn, NY / Mercy Medical Center, Sioux City, IA

BIOL 475	Medical Microbiology (4)
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University of Minnesota, Minneapolis, MN and Rochester, MN	
CHEM 321	Organic Chemistry II (3)
CHEM 331	Organic Chemistry II Lab (1)
(choose 4 credits)	
MATH 121	Calculus I (4)

Required Minor: None.

#### COURSE DESCRIPTIONS

##### MEDT 410 (1-10) Clinical Hematology I

Theory of blood cell formation; disease states; hemostasis, microscopic examination of blood/bone marrow films; practical experience with instruments and techniques which determine major hematologic and clotting parameters; quality control.

##### MEDT 411 (1-10) Clinical Immunohematology I

Major blood group systems; principles and procedures for antigen/antibody detection, identification; donor blood collection, preservation, processing; component therapy; transfusion reaction evaluation; Rh immune globulin; quality control.

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## MEDICAL LABORATORY SCIENCE CONTINUED

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### **MEDT 412 (1-10) Clinical Immunology I**

Antigen/antibody structure function and interaction; basic principles and procedures of humoral and cellular immunology; performance and clinical correlation of serological testing; quality control.

### **MEDT 413 (1-10) Clinical Chemistry I**

Identification and quantification of specific chemical substances in blood and body fluids by analytical techniques; clinical correlation with disease states; principles of instrumentation; data processing; toxicology; quality control.

### **MEDT 414 (1-10) Clinical Microbiology I**

Theory and techniques of cultivation, isolation and identification of bacteria, fungi, parasites and viruses; determination of sensitivity to antimicrobial agents; clinical correlation to disease states, asepsis; environmental monitoring; quality control.

### **MEDT 415 (1-10) Clinical Microscopy I**

Theory of renal function in health and disease; renal function tests including chemical and microscopic examination of urine; analysis of fecal specimens, gastric, spinal fluid and other body fluids; quality control.

### **MEDT 416 (1-10) Clinical Hematology II**

A continuation of Clinical Hematology I.

### **MEDT 417 (1-10) Clinical Immunohematology II**

A continuation of Clinical Immunohematology I.

### **MEDT 418 (1-10) Clinical Chemistry II**

A continuation of Clinical Chemistry I.

### **MEDT 419 (1-10) Clinical Microbiology II**

A continuation of Clinical Microbiology I.

### **MEDT 420 (1-10) Clinical Microscopy II**

A continuation of Clinical Microscopy I.

### **MEDT 499 (1-6) Individual Study**

Related topics in medical technology.