

## 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

Director: Lois Anderson, MA, MT (ASCP)

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.

**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 Department of Medical Laboratory Science 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.

### POLICIES/INFORMATION

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 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, John T. Crosssen, M.D., Roberta Montgomery, BS, MLS, MT (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, Carol Collingsworth, MT (ASCP) SC; Lindsey Mullenbach, MLS (ASCP); Lileah Harris, M.D., University of Minnesota, Minneapolis, MN, Janice Conway-Klaasen, Ph.D., MT(ASCP) SM; Fairview Health Services, Minneapolis, MN, David Dexter, M.D., Carol McCoy, MT(ASCP); University of Iowa, Iowa City, IA, Judith Kittleson, MT(ASCP); Sanford USD Medical Center, Sioux Falls, SD, DesiRae M. Muirhead, 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

### 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)
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)

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Special Individual Clinical Internship Requirements		
<i>Hennepin County Medical Center, Minneapolis, MN</i>		
BIOL	380	Blood Banking/Urinalysis (3)
BIOL	430	Hematology/Introduction to Immunology (4)
BIOL	475	Medical Microbiology (4)
<i>St. Luke's Hospital, Cedar Rapids, IA/St. Luke's College, Sioux City, IA/Fairview Health Services, Minneapolis, MN/Mercy College of Health Science, Des Moines, IA/Sanford USD Medical Center, Sioux Falls, SD</i>		
BIOL	430	Hematology/Introduction to Immunology (4)
BIOL	475	Medical Microbiology (4)
<i>University of Iowa, Iowa City, IA</i>		
BIOL	430	Hematology/Introduction to Immunology (4)
(Choose 4 credits)		
CHEM	305	Analytical Chemistry (4)
CHEM	321	Organic Chemistry II (3)
CHEM	331	Organic Chemistry II Lab (1)
<i>University of Minnesota, Minneapolis, MN and Rochester, MN</i>		
(Choose 4 credits)		
CHEM	305	Analytical Chemistry (4)
CHEM	321	Organic Chemistry II (3)
CHEM	331	Organic Chemistry II Lab (1)

**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.

**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.