

## Clinical Laboratory Sciences/ Medical Technology

College of Science, Engineering & Technology  
Department of Biological Sciences  
246 Trafton Science Center S • 507-389-2417  
Web site: [www.mnsu.edu/dept/biology](http://www.mnsu.edu/dept/biology)

Director: Lois Anderson, MA, MT (ASCP)

The four-year clinical laboratory sciences & medical technology curriculum leads to the degree of Bachelor of Science in clinical laboratory sciences & medical technology. The first three years are spent at the university. The fourth year is spent at one of the affiliated hospital schools of clinical laboratory sciences/medical technology. 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 clinical laboratory sciences/medical technology 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 Clinical Laboratory Sciences & Medical Technology 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 Clinical Laboratory Sciences & Medical Technology 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 Angie B. Bomier, student relations coordinator, TR125 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 Clinical Laboratory Science / Medical Technology program include, but not limited to: Hennepin County Medical Center, Minneapolis, MN, James Fink, M.D., Ph.D, Roberta Montgomery, BS, MLS, MT (ASCP); Mercy College of Health Sciences, Des Moines, IA, Kyla Deibler, MS, MT (ASCP), CLS (NCA); St. Luke's Hospital, Cedar Rapids, IA, Nadine Sojka, MS, MT (ASCP); University of Minnesota, Minneapolis, MN, Patricia Solberg, CLS (NCA), Carol Wells, Ph.D., MT (ASCP); 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., Pam Briese, MS, MT (ASCP), SC., James Quesenberry, M.D. Internship sites are required by law to do background checks on all students admitted to their medical technology / clinical laboratory science programs.

## CLINICAL LABORATORY SCIENCE/MEDICAL TECHNOLOGY BS

### Required General Education (9 credits)

CHEM 201 General Chemistry I (5)

Choose one of the following:

MATH 112 College Algebra (4)

MATH 113 Trigonometry (3)

MATH 115 Precalculus Mathematics (4)

MATH 121 Calculus I (4)

### Required Support Courses (18 credits)

CHEM 202 General Chemistry II (5)

CHEM 305 Analytical Chemistry (4)

CHEM 320 Organic Chemistry I (5)

CHEM 360 Principles of Biochemistry (4)

### Required for Major (Core 32 credits)

BIOL 105 General Biology I (4)

BIOL 106 General Biology II (4)

BIOL 175 Orientation to Clinical Laboratory Science (1)

BIOL 211 Genetics (4)

BIOL 230 Human Physiology (4)

BIOL 270 Microbiology (4)

BIOL 420 Diagnostic Parasitology (3)

BIOL 430 Hematology/Introduction to Immunology (4)

BIOL 475 Medical Microbiology (4)

### Required for Major (Internship, 32-39 credits)

Complete up to 32-39 credits from the following courses:

MEDT 410 MEDT 411 MEDT 412 MEDT 413 MEDT 414

MEDT 415 MEDT 416 MEDT 417 MEDT 418 MEDT 419

MEDT 420 MEDT 499

### Required Minor: None.

**Special Requirements.** If the internship is at Hennepin County Medical Center, students must complete Biology 380: Blood Banking / Urinalysis (3).

If the internship is at Fairview Health Services, the University of Iowa, St. Luke's Colleges, or Sanford USD Medical Center, students must complete a course in statistics or biostatistics.

If the internship is at the University of Minnesota, students must complete a second math class either in pre-calculus, calculus, statistics, or biostatistics. The University of Minnesota does not require Biology 420, Biology 430, and Biology 475. These requirements are in addition to degree requirements.

### 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.