



Program in  
**CLINICAL LABORATORY SCIENCES**

**General Information..... 64**  
Mission Statement ..... 64  
Facilities ..... 64  
Admission ..... 65  
Degrees ..... 65  
Policies..... 65  
Essential Functions..... 66  
Certification and Placement ..... 66  
Licensure..... 66  
Advising..... 66  
Special Learning Opportunities and Resources ..... 67  
Scholarships..... 67  
Career Paths..... 67  
Student Organizations..... 67

**Directory..... 67**

**Degree Program ..... 69**  
Clinical Laboratory Sciences B.S..... 69

# CLINICAL LABORATORY SCIENCES

## General Information

The Clinical Laboratory Sciences (CLS) Program (formerly the Medical Technology Program) was established at the University of Minnesota in 1922 to prepare men and women for professional work in laboratory science and advanced study. This program provides a strong foundation in the sciences together with rich experiences in the clinical laboratory. Approximately 20 percent of clinical laboratory sciences graduates go on to complete an advanced degree.

Clinical laboratory scientists perform many and varied laboratory analyses and use critical thinking in determining the correctness of test results. They recognize the interdependency of testing information and have knowledge of physiologic and pathologic conditions affecting results in order to validate them. In many health care settings, they provide data used by physicians to determine the presence, extent, and, as far as possible, causes of disease.

### Clinical laboratory scientists:

- develop and establish procedures for collecting, processing, and analyzing biological specimens and other substances.
- perform analytical tests using body fluids, blood, serum, plasma, cells, and other patient samples.
- integrate and relate data generated by various clinical laboratories while making decisions regarding possible discrepancies.
- confirm abnormal results, verify and execute quality control procedures, and solve problems concerning the generation of laboratory data to maintain accuracy and precision.
- establish and perform preventive and corrective maintenance of equipment and instruments as well as identify appropriate sources for repairs.
- develop, evaluate, and select new techniques, instruments, and methods in terms of their usefulness and practicality within the context of a given laboratory's personnel, equipment, space, and budgetary resources.
- demonstrate professional conduct through interpersonal skills with patients, laboratory personnel, other health care professionals, and the public.
- participate in continuing education for growth and maintenance of professional competence.
- provide leadership in educating other health personnel and the community.
- exercise principles of management, safety, and supervision.
- apply principles of educational methodologies.

Tests and procedures are performed or supervised by laboratory scientists in hematology, coagulation, microbiology, transfusion medicine, immunology, clinical chemistry, and urinalysis. Subspecialty areas in which laboratory personnel work include fields such as molecular diagnostics, cytogenetics, fertility testing, flow cytometry, tissue typing, forensics, and infection control.

As complexities of clinical laboratories increase, many laboratory scientists specialize in transfusion medicine, hematology, microbiology, chemistry, immunology, virology, coagulation,

administration, computer science, education, quality assurance, and other areas. There are opportunities for graduates to work in hospital laboratories, clinics, physician offices, public health agencies, research, and industry.

As a general rule, a student who has excelled in scientific subjects in high school will succeed in clinical laboratory sciences.

The program is fully accredited by the National Accrediting Agency for Clinical Laboratory Sciences, 5600 N. River Rd. Suite 720, Rosemont, IL 60018-5119 (773-714-8880; email [INFO@naaccls.org](mailto:INFO@naaccls.org)).

## Mission Statement

The primary mission of the Clinical Laboratory Sciences Program (CLSP) is to enhance health through teaching, research, and service, by 1) leading clinical laboratory science education with special attention to the needs of the state of Minnesota, 2) pursuing and disseminating new knowledge with original and creative research in the practice of clinical laboratory science, education and medical science and 3) providing educational and collaborative opportunities to academic institutions, health professionals, industry partners and the community.

## Facilities

Students in the CLSP pursue their coursework and training in the health sciences complex of the Academic Health Center on the east bank of the Minneapolis campus. These facilities include the Mayo Memorial Building, Malcolm Moos Health Sciences Tower, Molecular and Cell Biology Building, Weaver-Densford Hall, and the Phillips-Wangensteen Building. Close or connected to the complex are the University of Minnesota Medical Center, Fairview; Dwan Variety Club Cardiovascular Research Center; Veterans of Foreign Wars Cancer Research Center; and Children's Rehabilitation Center. Extensive resources and services of the Bio-Medical Library, including the Learning Resources Center, are housed in Diehl Hall. A second performance site is housed at the University of Minnesota, Rochester, at University Square.

These facilities provide rich learning, research, and internship environments for many students. They are excellent research centers, not only for studying diseases, healthy physiological processes, and environmental health, but also for developing new procedures and delivering expert health care. The proximity of the Academic Health Center (AHC) units to one another and to the rest of the campus facilitates interdepartmental communication and underscores the interdisciplinary nature of health care. The Academic Health Center units also maintain affiliations with many hospitals and health care facilities around the Twin Cities and greater Minnesota, which afford students access to a wide spectrum of health care situations.

## Clinical Experiences

Students in the program in clinical laboratory sciences complete a 17-week clinical experience, with 4 weeks in each of the major laboratory disciplines and a 1-week enrichment rotation. The University has affiliation agreements with the major healthcare systems, and community and private hospitals throughout the state to provide this experience. To ensure a diverse clinical

experience, students are assigned to various health care sites for each of the 4-week sessions. Most students are provided a non-Metro experience. Clinical experiences can take place at Fairview Health Services; HealthEast Care Systems, Memorial Blood Centers, Minnesota Department of Health, North Central Blood Services of St. Paul, Allina, HealthPartners, North Memorial Medical Center, Park Nicollet Health Services, National Marrow Donor Program, Veterans Affairs Medical Center in Minneapolis and St. Cloud; and at greater Minnesota clinical sites in Bemidji, Brainerd, Duluth, Hibbing, Lake City, Mankato, Paynesville, St. Cloud, Willmar, and numerous other sites.

## Admission

The Clinical Laboratory Sciences Program sets its own standards and requirements for admission. These include a strong background in the natural sciences (specifically biology, chemistry, and physiology), as well as in the social and behavioral sciences. The program recommends that applicants be genuinely interested in human services and sincerely committed to promoting the public's health and general welfare. Students generally enter the program at the beginning of their junior year.

## Application Process

The curriculum consists of the preprofessional program at the University of Minnesota or its equivalent at another regionally accredited institution, and the professional CLS program in the Center for Allied Health Programs, which is part of the Academic Health Center—Twin Cities and Rochester campuses.

**Admission to the Preprofessional Program**—Students who apply for enrollment in a preprofessional program must meet the admission criteria and follow academic regulations of that college. Students pursue the preprofessional program during their first two years of college.

The clinical laboratory sciences course sequence is based on entrance to the professional program in the fall semester of the student's third or fourth year, depending on completion of prerequisites. Admission to year three is preferred. Space is very limited for fourth year admission.

Admission to the preprofessional program at the University of Minnesota does not guarantee admission to the professional CLS program.

**Admission to the Professional Program**—For admission to the CLS program, a student must have completed 60 semester credits, including required courses. The major criterion for admission is satisfactory academic performance as judged by the student's grade point average (GPA) in prerequisite science courses and cumulative GPA. Students are admitted once each year for the fall semester. Admission to the professional program is competitive because of the limited number of students who can be accommodated in the teaching and clinical facilities.

**Students in residence at the University of Minnesota** who expect to complete the requirements for admission to the professional program must file a Change of College form (available from the One Stop website, [onestop.umn.edu](http://onestop.umn.edu), under the "Forms Online" Quick Link) Applications are taken starting in November. (Applications are accepted until the class is full.) Students who have sufficient credits but who have course deficiencies should consult the program adviser regarding their status. A rolling admission process is used.

**Students from other regionally accredited colleges and universities** may transfer to the University of Minnesota to complete the program. Courses completed that are equivalent to those offered at the University of Minnesota are accepted to satisfy the requirements for admission. Students who have a baccalaureate degree in a science curriculum and have completed required courses may finish the program in 15 months, as space is available. Students transferring from other colleges may apply online through the admissions website at [admissions.tc.umn.edu](http://admissions.tc.umn.edu). Applications are received starting in November. Transfer students are strongly advised to ascertain their status by writing to the Adviser, Clinical Laboratory Sciences Program, University of Minnesota, MMC 711, 420 Delaware Street S.E., Minneapolis, MN 55455. Required science courses must be completed by the end of spring semester. Students should double check with the adviser to be sure that their courses are equivalent for transfer.

**English Proficiency**—Students who are not native speakers of English must take the Test of English as a Foreign Language (TOEFL) or the Michigan English Language Assessment Battery (MELAB). A TOEFL score of at least 570 (paper), or 88 (Internet), or a MELAB score of at least 84 is required for admission.

To register for the TOEFL, students should contact the agency that handles TOEFL registration in their country or refer to their website at [www.ets.org/toefl](http://www.ets.org/toefl). Students who are already in residence in the Twin Cities area may register for the MELAB at 109 Eddy Hall, 192 Pillsbury Drive S.E., Minneapolis, MN 55455, or call 612-626-8648. To register for the MELAB outside the Twin Cities area, contact the English Language Institute, Testing MELAB Office, University of Michigan, 500 East Washington Street, Ann Arbor, MI 48104-2028, USA, or call 734-615-6586 (toll free 1-866-696-3522). Their email address is [melabelium@umich.edu](mailto:melabelium@umich.edu).

Those who have completed one year of instruction and composition at a college or university where English is the language of instruction may have the English Proficiency requirement waived.

## Degrees

Clinical laboratory sciences offers the bachelor of science (B.S.) degree.

## Policies

### Immunizations

Upon enrollment into the CLS program, students are required to submit proof of the following immunizations and vaccinations:

- Measles/mumps/rubella documentation or positive titre
- Two-step tuberculosis skin test (Mantoux)
- Hepatitis B series or documented immunity
- Past DTP or diphtheria/tetanus within the last 10 years
- Varicella Zoster (chicken pox) positive history or two doses of vaccine

For the specific AHC immunization policy and form, see [www.bhs.umn.edu/immunization-requirements.htm#AHC](http://www.bhs.umn.edu/immunization-requirements.htm#AHC) on the web. Students should start early to complete this requirement.

## Health Insurance Coverage

CLS students are expected to carry health insurance to cover emergency medical situations. Specifics on the AHC health insurance policy can be located on the web at [www.shb.umn.edu/twincities/ahc-students.htm](http://www.shb.umn.edu/twincities/ahc-students.htm). Students should carry their insurance information at all times.

## Background Check

CLS students are placed in a variety of clinical settings during their clinical coursework. In accord with Minnesota law, a criminal background check is required of each student before they begin clinical courses. The program arranges this check. Approval must be obtained in order to complete your required courses and complete your degree.

## Satisfactory Academic Progress

Students in the professional program are subject to the regulations established by the program and must maintain satisfactory academic progress.

Satisfactory performance is considered to be not only a passing level in scientific and technical skills together with theoretical knowledge, but also complete personal integrity and honesty.

Students not achieving satisfactory progress may be placed on scholastic probation.

Students' work is considered unsatisfactory when they earn less than a C- grade average (1.67 grade points for each credit) for any course in a given year or semester. In addition, students must earn a minimum grade of C- in selected courses to enroll in related clinical rotations, and maintain an overall GPA of 2.00 while enrolled at the U of MN.

If students receive an unsatisfactory grade in a course, remedial work in the course may be provided, if possible; if not, students must repeat the course the next time it is offered. If students receive an unsatisfactory grade in more than one course, either concurrently or in different semesters, the matter is referred to the program director for investigation and action. If it is determined the student should not continue in the curriculum, the affected student will be notified. Unsatisfactory grades in two courses are sufficient basis for dismissal.

## Essential Functions

To successfully complete the clinical laboratory science program, students must be able to perform the following functions.

**Communication skills**—Must be able to communicate effectively in written and spoken English; comprehend and respond to both formal and colloquial English—person-to-person, by telephone, and in writing; appropriately assess nonverbal as well as verbal communication.

**Locomotion**—Must be able to move freely from one location to another in physical settings, such as the clinical laboratory, patient areas, corridors, and elevators.

**Small motor skills**—Must have sufficient eye-motor coordination to allow delicate manipulations of specimens, instruments, and tools. Must be able to grasp and release small objects (e.g., test tubes, microscope slides); twist and turn dials/knobs (e.g., for a microscope, balance, or spectrophotometer); and manipulate other laboratory materials (e.g., reagents and pipettes) in order to complete tasks.

**Other physical requirements**—Must be able to lift and move objects of at least 20 pounds. Must have a sense of touch and temperature discrimination.

**Visual acuity**—Must be able to identify and distinguish objects macroscopically and microscopically; read charts, graphs, and instrument scales.

**Safety**—Must be able to work safely with potential chemical, radiologic, and biologic hazards and follow prescribed guidelines for working with all potential hazards, including mechanical and electrical.

**Professional skills**—Must be able to follow written and verbal directions; work independently and with others and under time constraints; prioritize requests and work concurrently on at least two different tasks; maintain alertness and concentration during a normal work period.

**Stability**—Must possess the psychological health required for full use of abilities and be able to respond to others in a collegial manner; must be able to recognize emergency situations and take appropriate actions.

**Affective (valuing) skills**—Must show respect for self and others and project an image of professionalism, including appearance, dress, and confidence; and have complete personal integrity and honesty. Must adhere to appropriate professional manner and conduct.

**Application skills**—Must be able to apply knowledge, skills, and values learned from previous coursework and life experiences to new situations.

## Certification and Placement

Clinical laboratory sciences graduates are eligible to take the national ASCP examination for certification as a medical laboratory scientist (MLS). Many organizations and institutions require certification for employment.

The CLS adviser assists program graduates in finding employment. The program receives notices of employment opportunities in the field from all parts of the United States, and posts them in the CLS office and emails them to the senior class members.

## Licensure

The licensed clinical laboratory scientist practices in accordance with the requirements of individual state laws. In some states, a clinical laboratory scientist must participate in continuing education courses for license renewal. Minnesota does not require a license to practice.

## Advising

The program offers centralized advising services to undergraduates currently enrolled or interested in clinical laboratory sciences. In addition, the adviser works closely with the College of Liberal Arts natural science advisers. For more information, contact the Clinical Laboratory Sciences office (877-334-2659).

## Special Learning Opportunities and Resources

**Minority Program**—The Academic Health Center is committed to the recruitment and retention of minority persons who come from groups underrepresented in the health professions. Advising and assistance is provided by the Multicultural Center for Academic Excellence (MCAE).

## Scholarships

The clinical laboratory sciences program offers seven scholarship programs for students in the professional program. Scholarships are provided on the basis of scholastic achievement, need, and professional promise. For more information, contact the CLS office, (1-877-334-2659). The scholarship application is located on the website, [www.cls.umn.edu](http://www.cls.umn.edu). The scholarship application deadline is April 1.

## Career Paths

The Extended Career Paths chart represents positions taken by University of Minnesota graduates. It shows the opportunity and versatility of a clinical laboratory sciences degree for positions not only in hospital laboratories, but also in industry, research, public health, government, information systems, consulting, reference (private) laboratories, education, and other areas.

## Student Organizations

**Council for Health Interdisciplinary Participation**—The Council for Health Interdisciplinary Participation (CHIP) is an interdisciplinary student service organization dedicated to enhancing the quality of life and education of all Academic Health Center students. Activities include noontime lectures, evening workshops, and weekend symposia in areas such as bioethics, international health, alternative health care, and women's issues. CHIP publishes a newsletter featuring announcements of upcoming health sciences events, volunteer opportunities, and articles about topics of current interest to students. CHIP headquarters are located in an informal, comfortable lounge in 1-425 Malcolm Moos Health Sciences Tower. For more information, call 612-625-7100.

**Student Membership in Professional Organizations**—Undergraduates are eligible for student membership in the American Society for Clinical Laboratory Science. Students are also urged to participate in the activities of the Academic Health Center's Council for Health Interdisciplinary Participation (CHIP) and other University student organizations.

## Directory

### Twin Cities

#### Postal Address

Clinical Laboratory Sciences  
University of Minnesota  
MMC 711  
420 Delaware Street S.E.  
Minneapolis, MN 55455

#### Student Services Office

15-194 Phillips-Wangensteen Building  
1-877-334-2659  
Email: [cls@umn.edu](mailto:cls@umn.edu)  
Website: [www.cls.umn.edu](http://www.cls.umn.edu)

### Rochester

#### Student Services Office

University Square Room 421  
1-877-334-2659  
Email: [yutex0004@umn.edu](mailto:yutex0004@umn.edu)

# Extended Career Paths in Clinical Laboratory Sciences

Hospital/Medical Center: Laboratory Areas		Health Care Administration	Health Care Agency/ Government
Acute care Andrology/Fertility testing Blood bank Bone marrow Cell markers Chemistry Coagulation Computer science Components—Transfusion service Cytogenetics Cytodiagnostic urinalysis Cytology/Histology Development laboratory Drug analysis (toxicology) Endocrinology Flow cytometry Forensic science Genetics Hematology Immunology Immunopathology Immunophenotyping Infection control Laboratory supervisor or administrator	Microbiology Molecular diagnostics Mycology Nuclear medicine Out patient or clinic laboratory Parasitology Pathology—Surgical, autopsy Phlebotomy/Specimen processing Platelet studies Photography/Illustration (e.g., in forensic medicine) Quality assurance Serology Skin or bone bank Special stains STAT (emergency) laboratory Tissue typing Transfusion technical specialty Transplant services Urinalysis Virology	Clinic manager/administrator Coder-Abstractor (business or medical records office) Consultant service specialist Personnel director Emergency medical services coordinator Group practice administrator Financial manager/planner Hazardous waste coordinator Health care administrator Health insurance administrator Health policy analyst Health promotion coordinator Hospital quality assurance coordinator Infection control officer Epidemiologist Laboratory supervisor Laboratory director Laboratory utilization review coordinator Long-term care administrator Mental Health administrator Purchaser (laboratory/ hospital/ medical center) Staffing coordinator (laboratory or home care)	Administrator for Veterans Affairs hospital Biometrist Crime laboratory scientist Department of Health—Educator Department of Health—Proficiency test consultant Employee recruiter/Placement officer Environmental health specialist (inspector) Environmental pathology technologist Fraud investigator Health Management Organization—Health educator JC Survey team member/CAP inspector Medical examiner investigator (e.g., for coroner) Military service—Armed Forces, ROTC, National Guard NASA mission specialist Patient educator Private investigator FBI/Special agent (forensic lab)
Management Information System	Research—Basic and Applied	Industry (U.S. or International)	
Biometrician Director—Division of Biometry Hospital Information Systems—Team leader Installer/Educator Programmer Systems analyst	Associate scientist/Scientist Clinical trial coordinator Director of research Research analyst Research assistant	Advisor to or inventor of “home” or other laboratory tests Biomedical specialist—Occupational health Cell culture consultant Clinical trial coordinator Compliance coordinator Computer consultant Documentation supervisor Editor/manager—Medical publications Food technologist—Quality assurance manager Health care reimbursement coordinator Health promotion and education specialist Industrial hygiene specialist Installation specialist	Insurance underwriter Manager—Health claims administration Medical claims reviewer/ Auditor/ Insurance processor Medical consultant (TV/Movie industry) Medical fee analyst—Insurance Owner/Director of employee placement service Product specialist Quality control/Quality assurance monitor/Director Research and development technologist or director Research scientist Risk management representative—Insurance Salesperson Technical representative
Other Professional Routes	Education	Humanitarian Work	
Accounting Consultant to physician office laboratories Dentistry Health radiation science Laboratory scientist Law (e.g., patent attorney) Legislature—Politician, lobbyist, regulations writer	Medical Physics/Engineering Medicine Optometry Public health Reference/Independent/ Commercial laboratory scientist Veterinary medicine	Academician Allied health dean/Health sciences administrator Education coordinator or program director Educator of students in clinical settings Faculty member in MLS/CLS/CLT/Cyto/SBB program Higher education administrator Instructor in veterinary medicine or other allied health program Medical community services program coordinator	Medical missionary work Peace Corps Project HOPE, others

## Degree Program

### Clinical Laboratory Sciences B.S.

#### Allied-Medical Technology

- Required credits to graduate with this degree: 124.
- Required credits within the major: 39.
- This program requires summer terms.

The clinical laboratory sciences program prepares students to work in hospital, clinical, and medical research laboratories. Students can be accepted in either the junior or senior year. All courses for the major are taken in the fall and spring semester of the senior year, followed by 22 weeks of clinical coursework. Starting fall 2008 courses will be offered at two locations, Minneapolis and Rochester.

### Admission Requirements

Students must complete 9 courses before admission to the program.

Freshmen students are usually admitted to pre-major status before admission to this major.

A GPA above 2.00 is preferred for the following:

- 2.50 for students already admitted to the degree-granting college.
- 2.50 for students transferring from another University of Minnesota college.
- 2.50 for students transferring from outside the University.

Upon admission, students are required to submit proof of certain immunizations and vaccinations.

For information about University of Minnesota admission requirements, visit the [Office of Admissions website](#).

### Required Courses for Admission

Students must take one math course at the level of college algebra or higher and one course in calculus or statistics. The same course may not be used to satisfy both distribution requirements.

MATH 1031—College Algebra and Probability, MATH (3 cr)  
or MATH 1051—Precalculus I (3 cr)  
or MATH 1142—Short Calculus (4 cr)  
or MATH 1271—Calculus I (4 cr)  
MATH 1142—Short Calculus (4 cr)  
or MATH 1151—Precalculus II (3 cr)  
or MATH 1271—Calculus I (4 cr)  
or MATH 1272—Calculus II (4 cr)  
or STAT 3011—Introduction to Statistical Analysis, MATH (4 cr)  
BIOL 1009—General Biology, BIOL (4 cr)  
CHEM 1021—Chemical Principles I (4 cr)  
CHEM 1022—Chemical Principles II (4 cr)  
CHEM 2301—Organic Chemistry I (3 cr)  
CHEM 2302—Organic Chemistry II (3 cr)  
PHSL 3051—Human Physiology (4 cr)

### Program Requirements

MICB 4131, INMD 3001, LAMP 4177, and CLSP 1010 are highly recommended but not required for students pursuing a B.S. degree in clinical laboratory sciences. Students are placed in a variety of clinical settings during their clinical coursework. In accord with Minnesota law, a criminal background check is required of each student before clinical courses. The program arranges this check.

### Junior Year Courses

BIOC 3021—Biochemistry (3 cr)  
BIOL 4003—Genetics (3 cr)  
or GCD 3022—Genetics (3 cr)  
VBS 2032—General Microbiology With Laboratory (4 cr)  
or MICB 3301—Biology of Microorganisms (5 cr)

### Senior Year Courses

CLSP 4501—Introduction to Transfusion Medicine (2 cr)  
CLSP 4502—Introduction to Transfusion Medicine: Laboratory (2 cr)  
CLSP 4101—Virology, Mycology, and Parasitology for Clinical Laboratory Scientists (2 cr)  
CLSP 4102—Principles of Diagnostic Microbiology (2 cr)  
CLSP 4103—Diagnostic Microbiology: Laboratory (2 cr)  
CLSP 4602—Basic Concepts in Education and Research as Applied to the Clinical Laboratory (1 cr)  
CLSP 4203—Hemostasis (1 cr)  
CLSP 4302—Clinical Chemistry I: Lecture and Lab (3 cr)  
CLSP 4304—Clinical Chemistry II: Lecture (2 cr)  
CLSP 4305—Clinical Chemistry II: Laboratory (2 cr)  
CLSP 4401—Immunology (1 cr)  
CLSP 4402—Molecular Diagnostics (2 cr)  
CLSP 4601W—Management and Professional Issues, WI (2 cr)  
CLSP 4301—Urinalysis (1 cr)  
CLSP 4201—Hematology I (3 cr)  
CLSP 4202—Hematology II (2 cr)  
CAHP 5110—Foundations of Interprofessional Communications and Collaboration (1 cr)

### Clinical Courses

These courses should be completed during the clinical rotations in the summer and fall terms following the senior year, including clinical chemistry, hematology and coagulation, transfusion medicine, microbiology, and a specialty laboratory area.

CLSP 4703—Applied Clinical Chemistry and Urinalysis (2 cr)  
CLSP 4702—Applied Clinical Hematology/Hemostasis (2 cr)  
CLSP 4704—Applied Transfusion Medicine (2 cr)  
CLSP 4701—Applied Diagnostic Microbiology (2 cr)  
CLSP 4705—Specialty Rotation (1 cr)

### Program Sub-plans

A sub-plan is not required for this program.

### Honors (UHP) Sub-plan

Students admitted to the University Honors Program (UHP) must fulfill UHP requirements in addition to degree program requirements. Honors courses used to fulfill degree program requirements will also fulfill UHP requirements. Current departmental honors course offerings are listed at [www.honors.umn.edu/academics/curriculum/dept\\_courses\\_current.html](http://www.honors.umn.edu/academics/curriculum/dept_courses_current.html).

Honors students complete an honors thesis project in the final year, most often in conjunction with an honors thesis course, or with an honors directed studies or honors directed research course. Students select honors courses and plan for a thesis project in consultation with their UHP adviser and their departmental faculty adviser.

### Rochester Sub-plan

The clinical laboratory sciences major is available at two campus locations, the University of Minnesota, Twin Cities and the University of Minnesota, Rochester. Policies, application materials, and course content are the same at both campuses.

Prerequisites are the same for both performance locations.

