



Sanford Medical Laboratory Science Program

Accredited by the National Accrediting Agency
for Clinical Laboratory Sciences

Mission Statement

The Sanford Medical Laboratory Science Program is committed to providing didactic and practical instruction which will allow our students to acquire the knowledge, skills and attitudes necessary to attain a high level of competency in the practice of medical laboratory science.

The Medical Laboratory Science Program is one of two educational programs at Sanford USD Medical Center. It is accredited by the National Accrediting Agency for Clinical Laboratory Sciences.

The majority of students enrolled in the program are college seniors on affiliation from their respective colleges to complete the requirements for the Clinical Laboratory/Medical Laboratory Science degree. Other students are those who have obtained a baccalaureate degree prior to entry. All accepted students will be subject to a background check.

Graduates of this program, with baccalaureate degrees requirements met, are eligible to take the American Society for Clinical Pathology (ASCP) Board of Certification exam, or an equivalent certification exam. Granting of the program certificate is not contingent upon the student passing any type of external certification or licensure exam. However, becoming certified is highly recommended and often required by medical facilities.

About Sanford Health

Sanford Health, one of the largest health systems in the United States, is dedicated to the integrated delivery of health care, genomic medicine, senior care and services, global clinics, research and affordable insurance. Headquartered in Sioux Falls, South Dakota, the organization includes 44 hospitals, 1,400 physicians and more than 200 Good Samaritan Society senior care locations in 26 states and nine countries. Nearly \$1 billion in gifts from philanthropist Denny Sanford have transformed how Sanford Health improves the human condition.

Sanford Health includes:

- 44 medical centers
- 482 clinics
- More than 200 senior living facilities
- 190,000 Sanford Health Plan members
- 48,622 employees

About Sanford Health

Our Mission

Dedicated to sharing God's love through the work of health, healing and comfort.

Our Vision

Improving the human condition through exceptional care, innovation and discovery.

Our Values

Calling – Demonstrating enthusiasm for those we serve, our vocation and the organization's mission.

Courage – Having strength to persevere, innovate, use our voices and take action.

Family – Celebrating the connection and commitment we have to each other through it all.

Community – Providing care in a diverse range of settings and environments with a focus on the wellness of individuals.

Service – Sharing God's love through actions that reflect compassion, acceptance, love, humility and sincerity in keeping with the common Lutheran heritage of both organizations.

Resolve – Adhering to systems that align actions to excellence, efficiency and purpose.

Advancement – The pursuit of individual and organizational growth and development.

Sanford Health promise to patients and employees

Deliver a flawless experience that inspires.

Sanford Health Culture

Sanford Health is excited to be on a journey of tremendous growth and momentum. With our vast geography, cutting-edge medicine, sophisticated research, advanced education and our own health plan, we are unique in what we do and how we do it. Through relationships built on trust and successful performance and a vision to improve the human condition, Sanford seeks to make a significant impact on health and healing. With a commitment to diversity and inclusion, our journey as an organization includes continually building on the diverse talents, experiences and beliefs of our employees, as well as the patients and communities we serve. We are proud to be from the Midwest and to impact the world. We look forward to joining with you in the journey.

The Clinical Laboratory

The Laboratory is located on the 1000 level of the West Patient Building on the Sanford USD Medical Center campus. It covers an area of approximately 17,200 square feet, and includes both clinical and anatomic laboratory departments, processing rooms for the Blood Bank, and a large classroom which is utilized for didactic instruction. Pathology services are provided by the Sanford Pathology Department and the Sanford School of Medicine Pathology Residency Program, located adjacent to the laboratory.

The Laboratory is equipped with state-of-the-art instrumentation, which allows our laboratory personnel to perform a wide variety of tests accurately, precisely, and on a timely basis. Areas of testing include chemistry, hematology, coagulation, flow cytometry, urinalysis, immunology, immunohematology, microbiology and histology.

Laboratory Administration

Medical Director

Kim Bohy, MD, Sanford Pathology

Laboratory Administrative Director

Allen Miller, BS, MT (ASCP)

Department Supervisors

Lisa Greenfield, BA, MT (ASCP)

Lindsay Fricke, MBA, MLS (ASCP)

Richard Krum HT(ASCP)

Rebecca (Becky) Braaten, PBT (ASCP)

Don Wahl, MS, MT (ASCP) SC

Program Administration

Medical Director

Michael C. Geis, MD, Sanford Pathology

Program Director

Meredith Loosbrock, MS, MLS(ASCP)

Program Faculty

Meredith Loosbrock, MS, MLS (ASCP) ^{CM}

Lacey Hewitt, BS, MT (ASCP)

Tracy Roth, BS, MLS (ASCP) ^{CM}

Alycia Green, BS, MT (ASCP) ^{CM}

Jennifer Bannwarth, BS, MLS (ASCP) ^{CM}

Adjunct Faculty: Pathology Department and clinical staff specialists

Advisors and Affiliates

Mark Larson, PhD, Augustana University

Kari Potter, MS MLS (ASCP)^{CM}, University of South Dakota

Rebecca Johnson, Academic Advisor, Northern State University

Andrew Russell, PhD, Northwestern College

Brian Lowery, MS, University of Sioux Falls

Chun Wu, PhD, Mount Marty College

Tony Greenfield, PhD or Vaughn Gehle, PhD, Southwest Minnesota State University

Lois Anderson, MA, MT (ASCP), Minnesota State University Mankato

Entrance Requirements

Prerequisite Credits

The applicant must either be a college graduate or be enrolled in an affiliated “3 plus 1” program which grants credit for the work completed during the clinical program year at the hospital.

Prior to entering the program, the student must have completed all pre-clinical course requirements at his/her college or university. The “3 plus 1” student must be eligible for a baccalaureate degree upon satisfactory completion of the clinical program.

The minimal pre-clinical course and credit requirements are:*

- 16 semester hours of chemistry. This includes organic and/or biological chemistry.
- 16 semester hours of biological sciences to include anatomy and physiology, genetics and/or molecular biology, a course in microbiology, and immunology (2 credit min.) is required.
- One course of college level mathematics, and statistics.

**The chemistry and biological science courses must be acceptable toward a major in those fields or in medical laboratory science, or be certified by the college/university as equivalent. Survey courses do not qualify as fulfillment of the prerequisites. Remedial mathematics courses will not satisfy the mathematics requirement. Required classes must be completed with a letter grade of C or higher.*

Non-US student applicants without a BS/BA degree must be enrolled in an affiliated college, and have a minimum of 24 semester hours or credits of undergraduate coursework completed within the US at the time of application. Non-US applicants with a BS/BA degree completed outside the US, and with all prerequisite coursework completed, will be required to have a minimum of 8 semester hours or credits of relevant science coursework completed in the US at the time of application. Students with foreign degrees must have their transcripts evaluated by an appropriate US agency. All students with English as their second language must successfully complete the TOEFL exam. Each non-US applicant must possess the appropriate VISA and documentation allowing them to complete the clinical program. COMLE programs do not provide VISA sponsorship.

Other recommended courses are:

Parasitology Computer Science
Instrumentation Physics

Academic and Technical Requirements

Applicants must have a minimum cumulative grade point average (GPA) of 2.80. Applicants with GPA's below 2.80 may submit a COMLE application, however they will be evaluated and considered only after candidates with GPA's of 2.80 or higher have been processed.

For acceptance, the applicant must have sufficient visual, motor and intellectual function to correctly identify microscopic cellular structure; operate instruments and read printouts; enter computer data accurately; calculate, evaluate and explain laboratory results and quality control statistics; and obtain and handle specimens safely. The successful applicant must also have the ability to function effectively in stressful situations, and interact and communicate positively with patients and other healthcare professionals. A detailed description of these essential requirements (standards) is available on the website and from the Program Director. It is provided so that potential applicants can independently evaluate their ability to fulfill the expected requirements of a clinical laboratory scientist/medical technologist.

The Committee on Medical Laboratory Education (COMLE) requires that all applicants read and sign the form providing this description at the time of application.

Application

Application Procedure

Application for entrance into the Program is made through the Committee on Medical Laboratory Education. Application information may be obtained from our website, www.sanfordhealth.org/Careers/EducationalOpportunities. **Applications accepted August 1 to October 1** for the class starting the following June. Interviews are completed during October/November. Student selection is usually completed by late December.

Application Evaluation

The evaluation of an applicant is based upon the grade point average, interview(s), references and a statement of the applicant's expectations and goals. These are scored in accordance with the pattern adopted by the Committee on Medical Laboratory Education and carry these weight-values:

| | |
|-----------------------|-----|
| Science GPA | 20% |
| Cum. GPA | 20% |
| Academic progress | 10% |
| Interviews (s) | 30% |
| References | 15% |
| Applicant's statement | 5% |

Accepted students must continue to maintain a grade of "C" or higher in all required coursework. Additional considerations include: criminal background check, ties to Sanford Health, ties to the community or surrounding area, and US residency status.

Advanced Placement

Applicants with previous clinical laboratory experience, such as MLTs, will be evaluated on an individual basis regarding a reduced clinical rotation schedule once accepted into the program. This will required proof of competency in the areas of reduced clinical time to the satisfaction of the Faculty and the MLS Program Director. Applicants will need to have completed a BS/BA degree and meet all prerequisite requirements by the program start date. Any exception will be at the discretion of the MLS Program Director, and with clinical instructor(s) consultation. The didactic portion of the program does not allow for advanced placement.

Progress Requirement

During the clinical year, students must maintain a minimal grade of C.

For graduation, a student must have that grade, or better, in each of the subjects.

The grading system is based upon the student's attaining minimum competency for career entry.

MLS Program Grading Scale

| | | | |
|---------|---------|----|---------------------|
| A | 93-100% | or | 4.00 quality points |
| A- | 90-92% | or | 3.67 |
| B+ | 87-89% | or | 3.33 |
| B | 83-86% | or | 3.00 |
| B- | 80-82% | or | 2.67 |
| C+ | 77-79% | or | 2.33 |
| C | 73-76% | or | 2.00 |
| C- | 70-72% | or | 1.67 |
| Failing | <70% | | |

Transcript grades are calculated by the following breakdown (excluding Mgmt):

40% Final Bench Grade + 50% Final Didactic Grade + 10% Final Comprehensive Exam

Grading in the didactic portion of the program is based upon written examinations, assignments, or research paper. The didactic grade average in each subject is utilized in the calculation of final grades. Progress in the practical portion (bench performance) of the program is evaluated after each rotation through a department. The grade received on the final rotation through each department is utilized in the calculation of final grades. No credit is given for partial completion of the course.

Causes for Dismissal or Probation

On the Basis of Grades:

- A policy on academic status is in place and will be distributed to all incoming students. Failure of more than 2 exams could result in dismissal from the program.
- Grade evaluations are made periodically throughout the program year. Students not maintaining the minimal allowed average are placed on academic probation. Students not maintaining an average grade of C by the two week break will be dismissed.

Progress records are maintained throughout the year and are available to the student at any time.

On the Basis of Conduct:

- Theft, immoral conduct, fighting, willful destruction of property on hospital grounds.
- Use or being under the influence of alcohol or illegal drugs within the institution.
- Cheating on school examinations or dishonesty in the performance or reporting of the procedures within the laboratory.
- Inconsiderate treatment of patients or discussion of confidential information with unauthorized persons.
- Excessive unexcused absenteeism and/or tardiness.
- Any other act classified as criminal.
- Unwillingness or inability to meet the "essential requirements" of the program

Students dismissed for reasons of either grades or conduct will not be allowed reentry into the program.

Appeals Procedure

An appeals procedure is available for use by any student having a grievance based upon seemingly unfair treatment. According to the procedure, a grievance not settled between the parties immediately involved may be appealed to the Program Director of the school, then to the Medical Director of the school and, finally, to the Executive Director over Laboratory Services.

Expenses

Costs

| | |
|----------------|---|
| Tuition | \$8300, inclusive of books, for program year 2020–2021. Tuition is due in full by the program start date. |
| Deposit | \$300 (Non-refundable and applicable to tuition) |
| Lab Coat | Water resistant coats worn while working in clinical testing areas are provided by Sanford USD Medical Center |
| Rooms | Students are responsible for their own living quarters |
| Meals | Available at moderate cost in the hospital cafeteria |
| Transportation | Students are responsible for their own transportation to and from Sanford USD Medical Center and outreach clinic locations. |

Refunds

Students who withdraw from the program will be allowed a tuition refund based upon the following schedule:

| | |
|-----------------------------|-----------------|
| First Week | 80%less deposit |
| Second Week | 60%less deposit |
| Third Week | 40%less deposit |
| Fourth Week | 20%less deposit |
| No Refund Thereafter | |

Note: No Credit will be granted for partial completion of the program.

Financial Aid

Scholarships and Loans

Students who will be attending the Sanford MLS Program on affiliation from one of the programs affiliated colleges/university will work with their home school's Financial Aid department to determine their aid package. This may include a combination of scholarships, federal loans and grants, and private loans.

Important Note: For those students attending our program independently and with BS/BA degrees already completed, Federal Financial Aid is currently not available for the Sanford MLS program. These students will need to seek private funding to meet tuition and living expense needs. In addition, Federal loan deferments may or may not be allowed during the program year. Throughout the program year, various scholarship opportunities arise through Sanford, professional societies, and medical corporations that students may qualify to apply for.

Part-Time Work

Sometimes phlebotomy or POC positions are also available. Phlebotomy hours are usually scheduled on weekends, evenings and holidays. Hourly rates of compensation are available when and if these positions are available. Microbiology Aid positions may be available later in the fall. Outside work involving more than a minimal number of hours per week is strongly discouraged.

Health Requirements and Services

Prior to the start of the clinical program, students will be required to provide proof of immunization for: MMR (measles/mumps/rubella), Varicella (chicken pox), Tuberculosis (TB), Hepatitis B, and seasonal Influenza; Td/Tdap (Tetanus-Diphtheria/Tetanus-Diphtheria-Pertusis) is recommended but not required at this time. A health assessment may be required and drug screen may be required. More information regarding immunizations and health assessment will be sent to accepted students about 2 months prior to the program start date. Cost responsibility should be presumed to be the student's responsibility.

o Biohazard Exposure

The medical laboratory science program utilizes actual patient specimens from the clinical laboratory in the student laboratory for learning opportunities and labs. During orientation students are instructed in safety in the lab and handling of potentially infectious specimens. Since the potential hazards are unknown, all specimens should be treated as if they were potentially infectious. Students are under the direct supervision by the clinical instructor or responsible technical staff member in the clinical laboratory. Appropriate personal protective equipment and work practice controls must be utilized at all times.

If any illness, injury or exposure occurs during program hours, students will be directed to the appropriate department or facility for treatment. Exposures are handled through the Exposure Hotline. Sanford ED or Sanford walk-in clinics are options. The student is responsible for health care costs and insurance coverage. The Sanford Wellness Center offers a variety of health and fitness programs.

Program Calendar

The Program begins the first full week in June/January and spans eleven months. The weekly schedule follows a Monday through Friday pattern. Students are allowed five days or 40 hours of personal time for illness or personal need. Additional time missed, or time missed during a shorten rotation must be made up. There is a two week break falling over Christmas for June start students, and the end of May for January start students. In addition, there is a short Fall break, typically in early October. Exact program dates and timeline changes with each program year and will be provided to accepted students. Recognized holidays follow the hospital holiday schedule and include: July 4th, Labor Day, Thanksgiving, Christmas Day, New Year's Day and Memorial Day. The Program also allows the Friday after Thanksgiving off unless a student needs to make up missed time.

The Program consists of didactic classroom lectures, bench instruction and clinical testing in each department, student laboratory sessions and some independent study. Hours are approximately from 7 a.m.-4 p.m. Monday through Thursday. Hours on Friday are from 7 a.m.-approximately noon. Three hours of didactic lecture are scheduled between 1 and 4 p.m. Monday through Thursday. Some bench areas may require them to come in earlier than 7 a.m. Students are provided with a weekly rotation schedule for the entire program year during orientation week. There are multiple rotations through each of the four major departments: Hematology, Chemistry, Microbiology, Blood Bank, and also enrichment rotations. There are usually two or three students assigned to each department. Bench instructors oversee the bench instruction in their respective departments, but students will also work with other staff members at times. The bench instructors have designed a set of objectives and work sheets for their respective areas. Timely completion of these assignments is expected in all areas.

A short evening rotation is scheduled later in the program year.

General Program Affective Objectives/ Expected Behaviors:

In both the classroom and clinical setting, the Medical Laboratory Science student will:

1. Display emotional stability, remaining calm and exercising good judgment under stressful situations.
2. Communicate effectively, both orally and in writing, with patients, visitors, fellow students, instructors, and staff. This includes relaying and receiving information.
3. Work productively and efficiently, both independently and in a team environment. Utilize time management and organizational skills for maximum benefit.
4. Demonstrate honesty, integrity, and empathy with patients, visitors, fellow students, instructors, and staff.
5. Behave in an ethical manner by following all established rules, policies, and procedures; taking ownership of errors and responsibility for his/her actions.
6. Project a professional image in dress and demeanor.
7. Maintain a positive and professional attitude, even under difficult circumstances.
8. Remain flexible and adaptive to change.
9. Take ownership for his/her learning, by completing assignments as directed and by coming prepared for class and clinical bench rotation each day.
10. Demonstrate and promote pride in the Medical Laboratory Science profession.

Program Goals

1. Provide a Medical Laboratory Science Program that meets or exceeds the standards developed by the National Accrediting Agency for Clinical Laboratory Science (NAACLS)
2. Maintain affiliations with regional colleges and universities by providing a curriculum that allows students to complete their bachelor degree in the field of Medical Laboratory Science
3. To provide students with the clinical education and professional development to succeed in the field of laboratory science, complete certification, and provide a foundation for healthcare career advancement
4. Provide high quality, well prepared graduates to help meet staffing needs locally, regionally, and at the national level

Values

Program faculty is encouraged to serve as positive, ethical role models for our students, and to be a constant source of encouragement and motivation. The values faculty strive to instill are:

- **Respect:** for patient, colleague, team, and self
- **Accountability:** for our actions, attitudes, and words
- **Integrity:** honesty, ethics, and adherence to policy
- **Trust:** support one another individually and as a team
- **Excellence:** strive to be the best in quality, efficiency, and cost
- **Passion:** enthusiasm for the work and the patient's overall experience
- **Advancement:** the pursuit of continued personal and organization growth

Competencies

At career entry, graduates will be able to demonstrate following competencies:

Professional Skills and Knowledge

- Perform phlebotomy procedures with skill and according to proper protocol
- Perform analytical laboratory tests from low to high complexity with skill, accuracy, and timeliness following Standard Operating Procedures (SOPs)
- Conduct routine instrumentation maintenance following SOP

- Analyze and review quality controls employing quality assurance principles and practices to ensure the accuracy of test results
- Perform, evaluate, and improve pre-analytical, analytical, and post analytical procedures for optimum quality of laboratory results
- Troubleshoot quality control issues, sample integrity problems, or instrumentation issues utilizing a combination of critical thinking, maintenance procedures, and continuous quality improvement guidelines
- Review patient results for acceptability, follow-up action, or additional testing as indicated
- Utilize information technology to perform and report results, access information, analyze data, and communicate with members of the health care team
- Comply with all regulatory requirements and policies of the facility
- Explain the significance of various laboratory tests in the diagnosis and treatment of disease, as well as, preservation of health
- Employ with guidance knowledge of method and instrument selection evaluation practices to determine implementation of new procedures and acquisition of new instrumentation, or investment in information technology, with consideration of budget, space, and staff
- Utilize education terminology and techniques to train/educate users and providers of laboratory services
- Management skills in basic financial management, human resources management, regulation and policy, safety and supervision

Professional Attributes

- Maintains a positive attitude and emotional stability under pressure
- Adaptive to changing workflows, the dynamics of the healthcare field, and the needs of the laboratory customer
- Works productively, efficiently, and accurately; both independently and as a team member
- Communicates effectively and professionally with colleagues, team, visitors, and patients
- Consistently performs in an honest, ethical, and professional manner
- Strives to grow as a professional through continuing education and professional involvement

Course Descriptions

Clinical Microscopy/Urinalysis, 2 semester hours

Lecture, supervised laboratory instruction, quality control, instrumentation, computer applications and experience in body fluids and urine in regard to chemical and cellular composition. Anatomy and physiology, theory of renal function in health and disease.

Clinical Hematology/Coagulation, 8 semester hours

Lecture, supervised laboratory instruction, quality control, instrumentation, computer application and experience in the analysis of cellular elements of the blood and bone marrow, both normal and abnormal, and the hemostatic mechanisms of the blood.

Clinical Microbiology, 10 semester hours

Lecture, supervised laboratory instruction, quality control, instrumentation, computer applications and experience in the isolation and identification of pathogenic organisms and their susceptibility to antimicrobial agents. Includes bacteriology, mycology, parasitology and virology.

Clinical Serology/Immunology, 2 semester hours

Lecture on antigen/antibody structure–function–interactions, supervised laboratory instruction, quality control, instrumentation, computer applications and experience in applying the principles of immunology to serologic diagnosis.

Clinical Chemistry/Immunoassay/Body Fluids,

11 semester hours

Lecture, supervised laboratory instruction, quality control, computer applications, instrumentation and experience in medically oriented biochemistry as applied to normal and abnormal physiology and analyses of body constituents. This course also includes analyses of special body fluids such as amniotic, synovial, cerebrospinal and pleural fluids.

Clinical Immunohematology, 6 semester hours

Lecture, supervised laboratory instruction, quality control, instrumentation, computer applications and experience in theory and practice of immunohematology as applied to blood transfusion, component theory, autoimmune diseases, immunologic diagnostic procedures and blood component preparation and administration.

Management and Supervision, 1 semester hour

Lectures and/or seminars on theory and techniques of laboratory oriented management practices utilized in planning, organizing, directing, controlling and supervising a clinical laboratory facility.

Educational Methodologies, Included in management

Lectures and/or seminars on the principles of education. Includes methods of instruction, writing objectives and evaluation devices for didactic and clinical practice.

Introduction to Research, Included in management

Faculty guided study, research, scientific writing, case study presentations and/or projects in specialty area(s) of clinical laboratory science.

Specialized Units (Special Topics) Orientation to Medical Laboratory Science

A. Introduction

Introduction to basic techniques, principles of safety, infection control, professional ethics, personal and professional responsibilities in the clinical laboratory. Review of program rules and regulations. Introduction to clinical significance of laboratory procedures in diagnosis and treatment.

B. Phlebotomy

Anatomy and physiology of the arm, blood collection techniques from the vein, capillary, artery and difficult draw sites. Specimen variables and handling techniques. Interactive communication skills with patients and para-professionals.

C. Computer Applications in the Clinical Lab

An introduction to techniques, principles and concepts common in laboratory data processing systems. Utilization of computers in the laboratory and within instruments.

D. Laboratory Mathematics/Quality Assurance

Laboratory oriented mathematics with emphasis on performing calculations related to units of measure, pH, Beer's Law and calibration curves, Henderson-Hasselbach equation, enzyme activity, renal clearance and hematology calculations. Principles and practices of quality assurance. Includes statistical techniques, method evaluation and pipette calibration. Critical thinking will be emphasized.

Credit for the Specialized Units of Instruction is included in the described courses.

Statement of Policy

Sanford's educational programs are equal opportunity programs. Any questions of discrimination on the basis of age, sex, race, color, creed, disability or national origin shall be directed to:

President
Sanford USD Medical Center
P.O. Box 5039
1305 W. 18th Street
Sioux Falls, SD 57117-5039
(605) 333-1000
www.sanfordhealth.org

Sanford USD Medical Center
Laboratory Science Program is accredited by the:

National Accrediting Agency
for Clinical Laboratory Sciences
(NAACLS)
5600 N. River Rd, Suite 720
Rosemont, IL 60018-5119
(773) 714-8880
Fax: (773) 714-8886
www.naacls.org

Our Website:

Link: <https://www.sanfordhealth.org/student-programs/medical-laboratory-science-program>

The website presents a brief overview of the program along with the following attachments:

- Clinical brochure
- Application
- Application instructions and reference forms
- Essential requirements guide
- Gainful Employment

For more information or program policies, please contact:

Meredith Loosbrock, Sanford MLS Program Director
meredith.loosbrock@sanfordhealth.org | (605) 333-7104

Policies available on request are:

- Academic Status
- Advance Placement
- Appeals
- Attendance and Punctuality
- Compassionate Leave
- Conduct
- Guarantee of Applied Experience
- Privacy of Student Records
- Retention of Student Records
- Service Work

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