

MLS STUDENT HANDBOOK

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ST CLOUD STATE UNIVERSITY Medical Laboratory Science Mission and Vision

Mission

The Medical Laboratory Science program prepares graduates to be competent entry level laboratory professionals focused on the knowledge, skills, and professional character needed to function effectively in a clinical laboratory. Additionally, we seek to prepare students for life, work, and citizenship in the twenty-first century.

Vision

To be a respected program that provides an educational experience that instills a sense of self, value and dignity in others, compassion, care and concern for patients, lifelong learning, and the role an individual can have in transforming their life and those they live and work.

Learning Commitments

- Active and applied learning
- Community engagement
- Sustainability
- Global and cultural understanding

Values

- Integrity
- Innovation
- Excellence

Accreditation

St. Cloud State University is accredited by:
Higher Learning Commission and the National Council for Accreditation of Teacher Education.

St. Cloud State University is a member of the North Central Association

30 North LaSalle Street, Suite 2400
Chicago, IL 60602-2504
1-800-621-7440
(www.ncahigherlearningcommission.org)

Accreditation means that St Cloud State University has been found to meet the Commission's requirements and criteria. This accreditation provides public certification of acceptable institutional quality.

St. Cloud State University is a member of many academic and professional associations, including American Association of State Colleges and Universities, American Association of Colleges for Teacher Education and Council of Graduate Schools in the United States.

Equal Opportunity

St. Cloud State University is committed to providing equal education and employment opportunities to all persons regardless of race, color, creed, sex, age, religion, marital status, sexual orientation, national origin, mental or physical disability, status with regard to public assistance or physical disability or any other group or class against which discrimination is prohibited by State or Federal law. Further, the university will not tolerate acts of sexual harassment/assault within its area of jurisdiction. St. Cloud State University will continue to remain in full compliance with: Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, The Americans with Disabilities Act of 1990, and the 1992 Crime Bill.

Inquiries or complaints concerning the application of affirmative action, equal opportunity or Title IX at St. Cloud State University should be referred to Elynn L. Bartges, Equity and Affirmative Action Officer and

Title IX Officer, 320-308-5123. Inquiries about services offered under Section 504 of the Rehabilitation Act of 1973 or the American's With Disabilities Act of 1990 should be referred to the Director of Student Disabilities Services, 320-308-3117.

Academic Support

The primary mission of Undergraduate Education is to facilitate the transition to college and support student success through a wide range of first year academic support services. Undergraduate Education is comprised of the Academic Appeals and Probation Office, Academic Support Department, Advising and Student Transitions, St. Cloud Technical and Community College Connections Program, Provisional Admission Program, First Year Experience Program, University Honors Program, and University Placement Testing. The orientation and placement testing programs are also primary responsibilities of the Undergraduate Education unit and are delivered in partnership with key university stakeholders. The unit is housed in the Center for Student Success on the second floor of Centennial Hall where it works closely with the Math Skills Center. Through these programs and services, Undergraduate Studies cooperates with student support and transition programs across campus in order to help students achieve their educational goals.

St Cloud State University offers a variety of resources and services that support the needs of students, a few of which are listed here. Complete information including contact names, phone numbers, available hours, etc. for each area can be found at: <http://www.stcloudstate.edu/studenthandbook/>

Advising

Advising and Student Transitions provides students with information to help them make educated choices as they work out their academic program. The Advising Center offers individualized help with a range of questions and issues, such as helping students navigate the general education program. The center publishes an advising resources: <https://www.stcloudstate.edu/universitycollege/>

Location: **Centennial Hall 366**
Phone: **320-308-6075**
E-mail: advising@stcloudstate.edu
Website: www.stcloudstate.edu/advising

Additionally, the Program Director and faculty maintain confidentiality and impartiality for advising and guiding students through the program by following SCSU polices on Family Educational Rights and Privacy Act (FERPA) and Institutional Equity and Access.

Disability Access Services

Student Disability Services exists to foster programmatic access to students with cognitive, physical and mental/emotional disabilities, so students can achieve their educational aspirations. These rights and responsibilities have been documented so that we can work together towards that end.

SCSU:
Location: Centennial Hall 202
Phone: 320-308-4080 ((320) 308-4704 TTY)
Email: sds@stcloudstate.edu
Website: <http://www.stcloudstate.edu/sds>

NHCC:
Location: Learning Resource Center
Phone: 763-493-0555 (763-493-0558 TTY)
Website: www.nhcc.edu/das

Financial Aid

SCSU:

The Financial Aid Office administers federal and state grants, work programs, and loans. The University does offer a large number of [scholarships](#). Staff members are available to answer questions on an appointment or walk in basis.

Location: Administrative Services 106

Phone: 320-308-2047

E-mail: financialaid@stcloudstate.edu

Web site: www.stcloudstate.edu/financialaid

NHCC:

All students are encouraged to apply for financial assistance through the Free Application for Federal Student Aid (FAFSA).

Location: ES 48

Phone: 763-424-0728

Website: www.nhcc.edu/financialaid

Financial aid can only be awarded to one academic institution, so students wishing to take some courses (non-MLS) at another institution to fulfil a program requirement need to obtain and fill out the Consortium Agreement.

Additional resources to assist you are listed in the Student Handbook or Catalog.

MEDICAL LABORATORY SCIENCE PROGRAM

This program is jointly sponsored by SCSU and NHCC

Purpose

St. Cloud State University (SCSU) and North Hennepin Community College (NHCC) are collaborating on a 2 + 2 program that will result in a Medical Laboratory Scientist (MLS) BS degree from SCSU. Working Certified Medical Laboratory Technicians (MLTs) can complete the program in two years (full-time) plus clinical rotations. The program also encourages part-time students who are currently employed as MLTs to participate in the program.

Medical Laboratory Scientists work as members of the health care team, where they perform laboratory procedures that aid physicians in the diagnosis and treatment of disease. The Medical Laboratory Scientists performs routine laboratory tests in blood bank, chemistry, coagulation, hematology, immunology, microbiology, and urinalysis through the use of microscopes, chemical reagents, clinical instruments, and computer systems. In addition to hospital clinical laboratories, employment is available in medical clinics, outpatient facilities, physician offices, and private industry.

Learner Outcomes

Upon graduation from the College, students receive the Bachelor's in Science degree and are eligible to sit for both the American Society for Clinical Pathology Board of Registry (ASCP BOR) national certification examination.

St. Cloud State University assesses student learning to improve teaching and learning and to be accountable to the community it serves. A college culture that values assessment is the foundation for continuing improvement of the quality of higher education.

Each instructor at the College designs his or her own learning activities and assessments, but all faculty and staff work together to help students achieve the College's educational goals:

1. Discipline knowledge and the ability to apply it
2. Life-long learning and critical thinking skills
3. Effective communication skills
4. The ability to function in complex, diverse environments

Program Accreditation

Program is accredited by:

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

5600 North River Road, Suite 720

Rosemont, IL 60018-5119

Phone: 847-939-3597

Website: www.naacls.org

Student Learning Responsibilities

Higher education is an apprenticeship between student and teacher. Initially, the teacher provides example, direction, evaluation, and help. However, as time goes on, students become more self-sufficient, more self-directed, and more self-critical. Finally, the student becomes teacher, his or her own teacher.

The Learning Set of Responsibilities

1. I have the responsibility to take control of my own learning process.
2. I have the responsibility to think and act positively.
3. I have the responsibility to develop personal strategies for learning and problem solving.
4. I have the responsibility to attend and be engaged in class.
5. I have the responsibility to complete assignments.
6. I have the responsibility to ask questions.
7. I have the responsibility to participate in classroom activities.
8. I have the responsibility to help others when asked.

9. I have the responsibility to not exert influence on others regarding courses or instructors.
10. The path to success is to accept responsibility. Take charge of your own education!

Goals of the Medical Laboratory Science Program

The Medical Laboratory Science Program will:

1. Provide the environment necessary to enable each student to develop and demonstrate professionalism and concern for the customer.
2. Provide a curriculum that will enable each student to attain the program competencies:
 - a. Develop competence in the theoretical knowledge and technical skills necessary for proficient performance of clinical laboratory procedures to the best of their ability.
 - b. Participate in clinical experiences that will fulfill requirements in the following areas:
 - Chemistry
 - Coagulation
 - Hematology
 - Immunohematology
 - Microbiology
 - Urinalysis
 - c. Prepare for the national certification examination of the profession.
 - d. Develop awareness of the role and responsibilities of the medical laboratory scientist as a member of the health care team.
3. Provide well-qualified and motivated instructors.
4. Develop and use valid assessment tools.
5. Provide students with a broad educational background by using a variety of educational resources and experiences.
6. Educate students in the merits of continuous professional development.

MLS Program Graduates' Entry-Level Competencies

The MLS program builds upon competency statements as outlined in the ASCP Board of Certification. The following competencies are provided in didactic courses and expanded upon during clinical experience. Students are assessed by quizzes, examinations, study questions, competency lists, and case studies.

Upon successful completion of the St. Cloud State University Medical Laboratory Science Program, a student should be able to:

1. Demonstrate knowledge of the theory and principles to perform routine testing in chemistry, hematology, immunohematology, immunology, microbiology, hemostasis, body fluids, and molecular diagnostics.
2. Apply theory and practice related to laboratory operations (management/safety/education/R&D)
3. Evaluate the suitability of specimens for analysis and determine the optimal method of analysis.
4. Demonstrate correct labeling/patient confidentiality, identifying, transport, and storing of specimens.
5. Correlate laboratory theory and terminology to practical work.
6. Demonstrate knowledge of principles, operation, and maintenance of laboratory equipment.
7. Identify problems and take corrective action according to protocol.
8. Apply mathematical calculations to laboratory situations.
9. Apply quality assurance principles to monitor procedures, equipment, and technical competency.
10. Demonstrate safe work and infection control practices to ensure laboratory safety.
11. Demonstrate professional conduct and interpersonal communication skills.
12. Apply critical thinking skills to learning new techniques and procedures.
13. Relate laboratory findings to common disease processes.
14. Participate in continuing education to maintain professional competence.
15. Apply educational methods to train/educate.

Entry Level Competencies: Perform basic skills for each technical area:

Chemistry

1. Describe specified clinical chemistry assays with reference to:
 - a. Principles of the procedures and reactions involved.
 - b. Principles and operation of the instruments utilized.
 - c. troubleshoot and perform preventative and corrective maintenance and repairs
 - d. Diagnostic significance of the test results.
2. Accurately perform specified clinical chemistry procedures including:
 - a. Spectrophotometry
 - b. Electrophoresis and densitometry
 - c. Electrolyte analysis
 - d. Blood gas analysis
 - e. Osmometry
 - f. Automated instrumentation analysis
 - g. Urine chemistry analysis
 - h. Immunoassay methods

Hematology and Coagulation

1. Describe and identify the cellular components of both blood and bone marrow.
2. Discuss the function of the cellular components of blood and bone marrow.
3. Correlate cellular anomalies and test results with disease states.
4. List steps and factors in the coagulation scheme.
5. Accurately perform routine and special hematological procedures including:
 - a. Complete Blood Cell Counts
 - b. Manual cell counts (white blood cells and platelets)
 - c. CSF and body fluid cell counts
 - d. Differentials - normal and abnormal
 - Peripheral blood
 - CSF and body fluids
 - Bone marrow
 - e. Coagulation optical density and electromechanical procedures
 - f. Routine hematology testing
 - g. Special hematology and coagulation procedures

Microbiology

1. Perform a variety of bacteriological procedures allowing for identification of 90% of the usually occurring bacteria.
2. Perform and interpret a variety of conventional and automated susceptibility testing procedures.
3. Perform initial virology procedures for preservation and transport of clinical specimens.
4. Prepare, stain, and microscopically examine clinical materials and culture isolates.
5. Perform basic mycological procedures allowing for the identification of 80% of the usually occurring yeasts and molds.
6. Perform concentration and staining techniques, including wet preps for identification of parasites.
7. Describe principles and procedures of molecular testing.

Immunohematology

1. Describe, perform, evaluate, and interpret required pre-transfusion testing necessary for beneficial blood transfusion therapy.
2. Discuss the basic methods and principles of immunohematology testing.
3. List general health requirements; including disease markers, and criteria for exclusion of volunteer blood donors.
4. Describe blood components currently available for therapeutic use with regard to:
 - a. Preparation
 - b. Storage
 - c. Infusion

- d. Indications for use
 - e. Red blood cells prepared by sedimentation
 - f. Leukocyte reduced blood products
 - g. Irradiation
 - h. autologous/directed donations
5. Perform the following procedures on patient specimens with 100% accuracy, and correct interpretation.
 - a. Antigen typing, including ABO and Rh blood typing
 - b. Antibody detection
 - c. Antibody identification
 - d. Direct and Indirect Antiglobulin tests
 - e. Pre-transfusion compatibility testing
 - f. Transfusion reaction studies
 - g. Elutions, adsorptions, neutralizations
 - h. Titers
 6. Select appropriate components for transfusion given patient ABO and Rh blood type, and antibody screen results.
 7. Prioritize patient orders with regard to the urgency of the test request.
 8. Prepare the following components for transfusion in accordance with FDA and American Association of Blood Banks requirements:
 - a. Fresh frozen plasma
 - b. Cryoprecipitate
 - c. Platelets

Immunology

1. Describe, identify and discuss the functions of the cells and organs of the immune system.
2. Describe specified immunology procedures with reference to:
 - a. Theory and principles of the test systems involved.
 - b. Limitations of the test systems involved.
 - c. Diagnostic significance of the test results.
3. Accurately perform specified laboratory procedures including:
 - a. Serological screening
 - b. Flocculation, latex, and RBC agglutination.
 - c. Precipitation methods; including Radio Immunoassay and Ouchterlony
 - c. Serial dilutions and titers
 - d. Immunoelectrophoresis/immunofixation
 - d. ELISA and other immunoanalyzers
 - e. Direct and indirect immunofluorescence
 - f. Flow cytometry

Urinalysis and Body Fluids

1. Explain the structure and function of the urinary tract.
2. Identify, analyze, and report physical properties, chemical properties, and urine constituents according to QA procedures.
3. Identify normal and abnormal elements found in the microscopic examination of urine and recognize contaminants and artifacts.
4. Explain the presence of normal and abnormal constituents in urine; including contaminants and artifacts.
5. Explain chemical reactions of special tests and correlate results to disease states.
6. Explain semen analysis test results and their relationship to fertility.
7. State characteristics that differentiate other body fluids.
8. Identify and report fecal fat and occult blood in stool specimens.
9. Describe principles of operation on instrumentation used, including preventative and corrective maintenance and repairs, quality control, calibration, and troubleshooting.

Specimen Collection

Demonstrate knowledge and entry-level proficiency in blood collection procedures including:

1. equipment selection and usage
2. capillary and venous blood collection
3. patient identification
4. specimen labeling and handling

Management/Education

1. Write objectives, test questions, and prepare and present a talk using standard educational methodologies.
2. Distinguish between affective, psychomotor, and cognitive domains.
3. Prepare a resume and cover letter
4. Describe the integration of laboratory information systems with electronic health records.
5. Review a College of American Pathologists inspection checklist.
6. Demonstrate and discuss principles of management, supervision, and continuing education.
7. Demonstrate and discuss the writing of goals and objectives, proficiency testing, and competency testing.
8. Review the process of certification and accreditation

ST. CLOUD STATE UNIVERSITY
Medical Laboratory Science Program Faculty

Louise Millis, MS, MLS (ASCP)^{CM}	Program Director, Associate Professor Biology
	M.S. 1987, University of Wisconsin Oshkosh
	B.S. 1979, Western Connecticut State University
	Phone (W): 320-308-5438 (SCSU office)
	Phone (W): 763-424-0963 (NHCC office)
	lmillis@stcloudstate.edu
	lmillis@nhcc.edu
Pat Ellinger, MEd, MLS (ASCP)^{CM}, SBB (ASCP)	Medical Laboratory Instructor, Associate Professor Biology/Administrator
	MEd. Southern Illinois University at Carbondale
	B.A. 1971, Augsburg College
	Phone (W): 320-308-5438 (SCSU office)
	Phone (W): 763-424-0971 (NHCC office)
	pjellinger@stcloudstate.edu
Pam Bjoraker, MT (ASCP)	Adjunct Medical Laboratory Instructor/Administrator
	B.S. 1987, University of Minnesota, Minneapolis, MN
	Phone (W): 763-488-0281 (NHCC office)
	pkbjoraker@stcloudstate.edu
Lisa Dahl, MLS (ASCP)	Adjunct Medical Laboratory Instructor
	B.S. 2013, St Cloud State University, MN
	Phone (W): 763-488-0281 (NHCC office)
	imdahl@stcloudstate.edu
Ron Haas, PhD	Adjunct Medical Laboratory Instructor
	PhD 1970, University of Wisconsin, WI
	B.S. 1963, University of Wisconsin, WI
	Phone (W): 763-488-0281 (NHCC office)
	rghaas@stcloudstate.edu
Julie Laramie, MS, CLS (ASCP)	Adjunct Medical Laboratory Instructor
	M.S. 2016, Rutgers, NJ
	B.S. 2013, St Cloud State University
	Phone (W): 763-488-0281 (NHCC office)
	jlaramie@stcloudstate.edu
Anna Olson, BS, MT (ASCP)	Adjunct Medical Laboratory Instructor
	B.S. 1992, St Cloud State University, MN
	Phone (W): 763-488-0281 (NHCC office)
	amolson8@stcloudstate.edu
Katrina Amsler, BS, MLS (ASCP)	Adjunct Medical Laboratory Instructor
	B.S. 2011, St Cloud State University, MN
	Phone (W): 763-488-0281 (NHCC office)
	kaamsler@stcloudstate.edu
Alison Simonson, BS, MLS (ASCP)	Adjunct Medical Laboratory Instructor
	B.S. 2011, St Cloud State University, MN
	Phone (W): 763-488-0281 (NHCC office)
	amsimonson@stcloudstate.edu

MEDICAL LABORATORY SCIENCE PROGRAM COURSES

The course in the MLS program are designed to provide the second two-years of didactic and 406 laboratory experiences for working certified MLT's to obtain a BS degree in Medical Laboratory Science. Didactic classes are offered on the North Hennepin Community College campus. Future options include replicating the program on the SCSU campus.

After students have completed their didactic classes, their clinical experience will be obtained at the student's place of employment. Below is the list of current facilities with which we have affiliation agreements; each represents a clinical system with numerous sites. Clinical rotations are scheduled at some or all of these sites at the discretion of the affiliates.

The program will maintain affiliation agreements with the vast majority of the greater Minneapolis-St. Paul metropolitan area hospitals and large clinics. Most affiliates choose to maintain current affiliation agreements at all times. Some affiliates only want to maintain current affiliation agreements if and when they plan to have an SCSU student in their laboratory for a clinical rotation.

Once a student in our program is ready to be scheduled for clinical rotations (has completed the MLS didactic courses), the program will assure that a current affiliation agreement is in place. If needed the program will request that a current Clinical Facility Fact Sheet be sent to the Program Director for the site(s) to which the student will be assigned for the clinical rotation.

Affiliation agreements are kept up-to-date by the School of Health and Human Services office staff because the agreements, in many cases, cover other health care programs in addition to MLS.

Clinical Affiliate Systems (each has several facilities)

Allina Health System

The Commons at Midtown Exchange
2925 Chicago Ave
Minneapolis, MN 55407
888-425-5462

CentraCare/St. Cloud Hospital

1406 6th Ave North
St. Cloud, MN 56303
320-251-2700

Children's Hospital and Clinics

2525 Chicago Ave South
Minneapolis, MN 55404

Essentia Health

502 East Second St
Duluth, MN 55805

Fairview Health Services

Corporate Building
2450 Riverside Avenue
Minneapolis, MN 55454

HealthPartners

8170 33rd Ave South
Bloomington, MN 55425
952-883-6000

Clinical rotations are only scheduled according to the availability of the clinical site; they are not guaranteed to start immediately after the completion of the MLS didactic course work. The student may have to fulfill certain work requirements prior to being scheduled for their clinical rotations (varies by employer). Students should keep their employer informed of their progress in the program such that the supervisor and/or Clinical Liaison can plan ahead for the clinical rotations. Note: the scheduling is controlled by the clinical site, not by the student. The MLS program will work with the clinical site scheduler. Timing of the clinical rotations depends on one or more of the following:

- Available spots at the location of the clinical rotation.
- Student's availability: vacation time or re-scheduling to work a different shift.
- Student's supervisor's assessment of the student's readiness.
- Student's GPA, completion of other bachelor's degree requirements.

Currently we have restricted access to some other clinical affiliates. Historically they have been able to help with clinical rotations on a limited basis.

Currently didactic courses are offered once a year and students enroll for the fall semester so they can take classes in the prescribed sequence, which will then allow them to complete the program in 2 years (full-time), plus the clinical rotations. As noted above, clinical rotation scheduling is at the discretion of the employer. (See *Appendix A for curriculum map*).

Student Employment During Clinical Experience

All students in our program must be employed as MLTs working in a clinical laboratory and need to do their clinical rotation where they work or at another laboratory within their employer's system. Certified MLT's that are not employed cannot start the program. A student that becomes unemployed while in the program may not be able to proceed to the next semester of classes without finding successful employment as an MLT. Students need to be employed in a clinical system for 6-12 months before they can apply to the program. Some clinical systems require 1 -2 years of full time employment and an additional clinical site application in order to get approval that the clinical system will support their rotations. In addition, students changing employment within or outside of their current place of employment are subject to a resetting of the employment requirement, unless the employer agrees. Students arrange with their supervisor the time off for their clinical rotations. Some use vacation time, personal time, etc. Some who normally work evening or night shifts attend their clinical rotation on the day shift and then does their work shift as scheduled. In this way, the students can remain "students" and are not expected to do service work or work in place of a regular employee during their clinical rotations. On the contrary, some employers are willing to teach the students new responsibilities/tasks that are at the MLS level while they are paying the employee to work, so, in many cases, the student gets to accomplish part of their competency checklist while they are working. The bottom line is that the student must complete the Competency Checklist in each area.

If either their work or their schoolwork suffers during this arrangement, the Program Director will discuss the student's work and clinical experience with the student's supervisor, in conjunction with the student, to establish an alternate schedule.

Overview of Didactic Courses

Students are required to complete all university liberal education courses and any necessary pre-requisites. Admission into the program requires that students are certified MLT's working as MLT's (not specimen processing or administrative work) and have taken the equivalent of Chem 210 and Math 112, with a minimum of a C grade (note C- will not be accepted). The minimum acceptable overall college GPA is 2.50; minimum cumulative GPA in program-required math and science courses is 2.50. Once admitted to the program they are required to maintain a GPA of 2.5 or higher in their MLS classes and overall. Students falling below a 2.5 GPA in their MLS classes and overall may be placed on probation. Students will have 1.5 semesters to improve their GPA (to 2.5) to be removed from probation. If the student's grade does not improve, a student may be asked to repeat courses they did not earn a satisfactory grade. If a student's GPA continues to deteriorate a student may be asked to leave the program, they can reapply in the future.

Students who have been out of school more than 7 years need to maintain a minimum GPA of 2.5 or higher in their MLS classes and overall to proceed to the MLS 400 level courses (excluding MLS 406 & 407).

Science and math classes that are over 7 years old may need to be repeated before admission to the program. Classes will be evaluated on a case by case basis, including the use of assessments to determine a student's current knowledge. Students not passing the math and/or science assessments may need to repeat the appropriate courses.

Non-MLS science and math classes that are part of the MLS curriculum are subject to the rules of St. Cloud State University concerning fulfilling pre-requisites. For instance if a student receives a C- in Basic Organic Chemistry and a C is required to take Basic Biochemistry, the student will need to repeat the course. Additionally, any classes from other institutions that a student is attempting to transfer to St. Cloud State University to fulfill a requirement of the MLS program are subject to the department's determination if the classes are in fact equivalent classes.

Description of Didactic Courses

MLS 310 Anatomy and Physiology for MLS Majors

Course Description

Anatomy and physiology of humans in relationship to disease processes diagnosed by medical laboratory scientists.

Course Goals

1. Continue to study the human body.
2. Review connections between the anatomy and physiology of the human body.
3. Differentiate between the normal and abnormal state of the human body.

Student Learning Outcomes

1. Distinguish between normal or abnormal laboratory results.
2. Correlate anatomy of the major organs systems with normal and abnormal laboratory results.
3. Correlate abnormal laboratory results with physiological conditions of the major organ systems.
4. Distinguish between metabolic and respiratory acidosis and alkalosis and provide examples.
5. Suggest additional laboratory tests required to follow abnormal test results

MLS 312 Molecular Pathology for MLS Majors

Course Description

Genetics, immunology and molecular aspects of diseases tested for in medical laboratories.

Course Goals

1. Review foundational principles of genetics.
2. Review standard immunological and molecular techniques.
3. Solve case studies using molecular diagnostic tests.

Student Learning Outcomes

1. Describe principles of heredity.
2. List traits and mutations that lead to disease.
3. List immune system disorders and the conditions they cause.
4. List and describe common techniques used in a medical molecular diagnostics laboratory.
5. Correlate laboratory tests to disease processes and understand related physiology.
6. Store and effectively use blood components.
7. Interview and test blood donors.
8. Apply safety standards and government regulations to all procedures.

MLS 401 Advanced Clinical Hematology

Course Description

Theory of blood cell formation; hematological diseases, hemostasis; microscopic examination of blood and bone marrow; experience with hematological instruments and techniques, which determine major hematologic and clotting parameters; quality control.

Course Goals

1. Interpret normal and abnormal differentials in relation to disease states and correlate results from total blood counts
2. Solve case studies involving hematology and hematology practices.
3. Solve case studies involving coagulation and coagulation practices.

Student Learning Outcomes

1. Perform and interpret normal and abnormal hematology and coagulation using appropriate manual procedures, instrumentation, standards, controls and computer applications during pre-analytic, analytic and post-analytic phases.
2. Recognize unexpected results and instrument malfunction and take appropriate action.
3. Correlate laboratory tests to disease processes and understand related physiology.
4. Evaluate quality control values and recommend necessary actions.

MLS 402 Advanced Clinical Chemistry

Course Description

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

Course Goals

1. Apply critical thinking skills to problems presented.
2. Solve case studies involving the issues in chemistry.

Student Learning Outcomes

1. Review and refresh basic knowledge of the biochemistry of the body.
2. Interpret routine and specialized chemistry assays.
3. Correlate laboratory tests to disease processes.

MLS 403 Advanced Clinical Immunology & Molecular Genetics

Course Description

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

Course Goals (objectives provided on D2L for each topic covered):

1. Apply critical thinking skills to problems presented.
2. Solve case studies involving the immune system.

Student Learning Outcomes

1. Review and refresh basic knowledge of the immune system.
2. Interpret routine and specialized immunologic assays.
3. Correlate laboratory tests to disease processes.

MLS 404 Advanced Medical Microbiology

Course Description

Culture, isolation and identification of bacteria, fungi, parasites and viruses; determination of sensitivity to antimicrobial agents; clinical correlations to disease states; principles of asepsis; environmental monitoring; quality control.

Course Goals

1. Review standard clinical microbiological techniques.
2. Identify and correlate clinical isolates with symptoms of disease.
3. Use critical thinking to solve case studies.

Student Learning Outcomes

1. Perform and interpret routine and abnormal microbiology diagnostic tests using appropriate procedures, instrumentation, standards, controls, and computer applications during pre-analytic and post-analytic phases allowing for the identification of 90% of the usually occurring bacteria.
2. Demonstrate competency in routine and abnormal cultures (urine, respiratory, blood, and stool) as well as miscellaneous cultures such as abscess, wound, genital, and body fluids.
3. Operate microscopes efficiently.
4. Follow proper technique preparing and Gram staining isolates.
5. Correlate the laboratory tests to disease processes

MLS 405 Advanced Medical Immunohematology

Course Description

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

Course Goals

1. Review standard immunohematology techniques.
2. Perform and interpret normal and abnormal immunohematologic diagnostic procedures.
3. Solve case studies involving blood banking and transfusion practices.

Student Learning Outcomes

1. Perform and interpret normal and abnormal immunohematologic diagnostic procedures using appropriate manual techniques, instrumentation, standards, controls and computer applications during pre-analytic, analytic, and post-analytic phases.
2. Recognize unexpected results and instrument malfunction and take appropriate action.
3. Correlate laboratory tests to disease processes and understand related physiology.
4. Store and effectively use blood components.
5. Interview and test blood donors.
6. Apply safety standards and government regulations to all procedures.

MLS 406 Advanced Medical Urinalysis & Body Fluids

Course Description

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

Course Goals

1. Interpret normal and abnormal urines in relation to disease states and correlate results of microscopic with chemical results.
2. Solve case studies involving urinalysis and body fluid practices.

Student Learning Outcomes

1. Perform and interpret normal and abnormal using appropriate manual procedures, instrumentation, standards, controls and computer applications during pre-analytic, analytic and
2. Post-analytic phases.
3. Recognize unexpected results that do not correlate and instrument malfunction and take appropriate action.
4. Correlate laboratory tests to disease processes and understand related physiology.
5. Evaluate quality control values and recommend necessary actions.

MLS 407 Advanced Laboratory Management and Education

Course Description

Basic management principles, policy and procedure development, job descriptions, budgets, government regulations; education principles, construction of objectives, tests and evaluation tools; bench teaching.

Course Goals

1. Develop tools used in laboratory management and education.
2. Solve case studies involving laboratory management and education.

Student Learning Outcomes

1. Develop and implement management principles and policies.
2. Write laboratory Standard Operating Procedures.
3. Create job descriptions, postings, resumes and covers letters.
4. Construct objectives, exams and other evaluation tools.
5. Evaluate quality control values and recommend necessary action.

Description of Applied Courses (Fourth Semester, Clinical Experience)

The Program Director will meet with the student and their employer to determine which items on the checklist for each laboratory section the employee is already competent at (depending on the employee's continuing education and work experience).

Clinical experiences are not guaranteed by a student's employer. All employed students are required to request confirmation from their employer prior to being admitted to the MLS program.

MLS 401 Advanced Applied Medical Hematology

Practical experience and observation in the clinical laboratory covering the topics in Advanced Clinical Hematology and completion of hematology/coagulation checklist.

MLS 402 Advanced Applied Medical Chemistry

Practical experience and observation in the clinical laboratory covering the topics in Advanced Clinical Chemistry and completion of chemistry checklist.

MLS 403 Advanced Applied Medical Immunology & Molecular Genetics

Practical experience and observation in the clinical laboratory covering the topics in Advanced Clinical Immunology & Molecular Genetics and completion of immunology and molecular genetics checklist.

MLS 404 Advanced Applied Medical Microbiology

Practical experience and observation in the clinical laboratory covering the topics in Advanced Medical Microbiology and completion of microbiology checklist.

MLS 405 Advanced Applied Medical Immunochemistry

Practical experience and observation in the clinical laboratory covering the topics in Advanced Medical Immunochemistry and completion of immunochemistry checklist.

MLS 406 Advanced Applied Medical Urinalysis & Body Fluids

Practical experience and observation in the clinical laboratory covering the topics in Advanced Medical Urinalysis & Body Fluids and completion of urinalysis and body fluids checklist.

MLS 407 Advanced Applied Laboratory Management and Education

Practical experience and observation in the clinical laboratory covering the topics in Advanced Laboratory Management and Education and completion of management and education checklist.

BACKGROUND CHECK

An integral part of the MLS Program is the clinical experience. To provide this experience, the College contracts with local health care facilities.

Minnesota law requires that any person who provides services that involve direct contact with patients and residents at a health care facility licensed by the Department of Human Services (DHS) or the Minnesota Department of Health (MDH) must have a background check conducted by the state. An individual who is disqualified from having direct patient contact because of the background check will not be permitted to participate in a clinical placement in a Minnesota licensed health care facility. Failure to participate in a clinical placement required by the academic program could result in ineligibility to qualify for a degree in this program.

These background study requirements are found in Minnesota Statutes, chapter 245C, section 241.021, and section 144.057. "Direct contact services" is defined in Minnesota Statutes, section 245C.02, subdivision 11, as "providing face-to-face care, training, supervision, counseling, consultation, or medical assistance served by the program."

If because of the background study a student is disqualified from providing direct contact services, it is highly unlikely that the educational facility will be able to provide participation in clinical experience. If a student refuses to cooperate in the background study, any clinical facility will refuse to allow clinical experience participation. The MLS Program does not guarantee an alternative facility placement in either of these situations. If no facility placement is available, you may be terminated from the MLS Program.

Background check will be initiated by the College upon admission into the MLS program. Students may be required to appear in-person at SCSU to complete their paperwork. (*See Appendix F for Validation Form*).

ESSENTIAL FUNCTIONS

Essential functions represent the essential nonacademic requirements of the program that a student must be able to master to become employable. Examples of this program's essential functions are provided below. The National Accrediting Agency for Clinical Laboratory Science, in compliance with the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973, requires us to define and publish essential functions. *If you are not sure that you will be able to meet these essential functions, please consult with the MLS Program Director for further information and to discuss your individual situation.* If restrictions are necessary due to a disability, reasonable accommodations will be made. To receive accommodations, the student must contact Disabilities Access Services. (*See Appendix B*)

SCSU:

Location: Centennial Hall 202
Phone: 320-308-4080 ((320) 308-4704 TTY)
Email: sds@stcloudstate.edu
Website: <http://www.stcloudstate.edu/sds>

NHCC:

Location: Learning Resource Center
Phone: 763-493-0555 (763-493-0558 TTY)
Website: www.nhcc.edu/das

PROFESSIONAL CONDUCT STANDARDS

Professionalism

The following is a list of expected professional behaviors for the Medical Laboratory Scientist. Items listed below each category are examples and may not be all-inclusive.

Readily adjusts behavior to the changing work environment of the laboratory. (Adaptability)

1. **Adheres to the established dress code of the MLS program or laboratory. (Appearance)**
 - Clean and neat; body odors are not offensive; wearing of fragrance is prohibited.
2. **Complies with attendance policy of the MLS program or laboratory. (Attendance)**
 - Punctual - arrives on time as scheduled and is ready to start assignments.
 - Only uses the allotted time for breaks and meals.
 - Notifies appropriate person of absences or before leaving the area.
 - Uses lag time in a constructive manner.
3. **Displays a positive attitude toward the subject or laboratory department. (Attitude)**
 - Performs work as assigned without derogatory comments.
 - Follows directions precisely.
4. **Displays resourcefulness and realistic confidence in abilities. (Confidence)**
 - Clarifies unclear instructions before starting or continuing with a procedure.
 - Utilizes resources when appropriate. (personnel, procedures, reference books)
 - Is aware of own limitations and seeks appropriate help when needed.
5. **Responds to criticism in a positive manner. (Criticism)**
 - Accepts constructive criticism and willingly works to effect change.
 - Does not make excuses for inappropriate behaviors.
6. **Performs assigned work willingly and independently. (Initiative)**
 - Completes assignments in a timely fashion.
 - Assists others in completing routine tasks without prompting.
 - After completing assigned work seeks additional work.
 - Keeps work areas clean and well stocked.
7. **Accepts responsibility for own work. (Integrity, Judgment, Common Sense)**
 - Admits mistakes and works to correct them.
 - Treats patient/coworker information in a confidential manner.
 - Completes paperwork as required by regulatory agencies/laboratory.
 - Recognizes errors in performing lab work and notifies instructor immediately.
8. **Works cooperatively with instructors, other students, lab personnel, and other customers.**
(Relations with Others)
9. **Complies with all lab safety regulations. (Safety Awareness)**
 - Wears appropriate barriers as needed.
 - Adheres to all safety standards and procedures.
 - Does not put others at risk.
10. **Responds to the demands of stressful or unusual laboratory/patient contact situations in an acceptable manner. (Professional)**
 - Remains calm under pressure; does not use foul language.
 - Responds to agitated individuals in a calm and professional manner.
 - Communication is appropriate and easily understood.
 - Does not spend excessive time discussing personal problems.

ATTENDANCE/ABSENCE/LATENESS POLICIES

- Class attendance **is required** during lecture periods.
- Class attendance **is required** during testing periods.
- Class attendance **is required** during laboratory sessions.
- Attendance **is required** for all clinical rotation days.
- Students are **held responsible** for all class content and announcements.

When you are unable to attend a class or laboratory session you *MUST* notify the instructor prior to the start of class, or as soon as possible. (see below for policies regarding attendance)
For didactic courses, a message should be left in the NHCC MLS Program Office, phone number: 763-424-0963 or SCSU MLS Program Office, phone number: 320-308-5438.
For clinical courses, a message should be left with the laboratory department, the lab section you are scheduled in, and the Program Director or Clinical Liaison.

Lateness

Students are expected to arrive on time for classes, laboratory sessions, and clinical rotations. REPEATED LATENESS will be documented on course competencies, and will be referred to the Appeals Committee as appropriate.

First occurrence of lateness in a semester/rotation:

- Students who are late must meet with their instructor to explore the reason for their behavior. The Instructor will complete a Student Absence/Tardiness Report form (*Appendix A*) and this will become part of the student's file.

Second occurrence of lateness in a semester/rotation:

- The Instructor will complete a **Student Absence/Tardiness Report** form (*Appendix C*) as before and a loss of 2% on the grade for the day will be assessed.

Third occurrence of lateness in a semester/rotation:

- The Instructor will complete a **Student Absence/Tardiness Report** form (*Appendix C*) as before and a loss of 5% on the grade for the day will be assessed.

Additional incidents lateness will be referred to the Program Director.

Special approval from the Instructors and Program Director may be available dependent upon specific student situations. This must be discussed **before** the class begins.

Excused Absence

- Excused absences will include student illness, immediate family member (spouse, dependent) illness requiring supervision by the student, or immediate family member (parent, spouse, and dependent) funeral. Other circumstances for absence may be determined as "excused." Course work/rotation time will need to be made up at the discretion of the Instructor. The Instructor will complete a **Student Absence/Tardiness Report** form (*Appendix C*) and this will become part of the student's file.
- Excessive absences, as determined by the Course Instructor and the Program Director, may result in the student being asked to withdraw from a course. Excessive absence from more than one course may result in dismissal from the Program.

Unexcused Absence

- **Definition:** Missing class/lab/clinical rotation **without notifying the instructor prior to the start of the session**. Other circumstances may be determined as unexcused absences.
- When a student **has not** given prior notice of absence, the Instructor will complete a **Student Absence/Tardiness Report** form (*Appendix C*) and this will become part of the student's file. In addition, 2% will be deducted from the final course grade for the first infraction, a total of 5% deducted following the second infraction, and an additional 5% deducted for each unexcused absence thereafter.

Missed Exams

If an exam cannot be taken on the scheduled day, permission must be obtained from the Instructor prior to the test date.

Excused Absence on Exam Day

- First occurrence: the Instructor will complete a **Student Absence/Tardiness Report** form (*Appendix C*) and this will become part of the student's file.

- Second occurrence will result in 2% reduction of the test grade.
- Third occurrence will result in a 5% reduction in the test grade.
- Each additional occurrence will result in an additional 5% reduction in the test grade.
- Arrangements must be made by the student with the Instructor within 24 hours to take the exam or receive a score of "0" for that exam.

Unexcused Absence on Exam Day

- First occurrence will result in 2% off of the exam PLUS 2% off of the final course grade per the unexcused absence policy.
- Second occurrence will result in 5% off the exam PLUS 5% off the final course grade per the unexcused absence policy.
- Each additional occurrence will result in an additional 5% off the exam PLUS an additional 5% off the final course grade for each infarction thereafter.
- Arrangements must be made by the student within 24 hours to take the exam or receive a score of "0" for that exam.

Additional

- Special approval from the Instructors and Program Director may be granted dependent upon student situations. This must be discussed **before** the test day.
- Consistent failure to take tests as scheduled will be noted on a Record of Ineffective Behavior form (*Appendix D*) and become part of the student's file.

Records of Absenteeism

- Records are kept as a point of reference for future employers.

INSTRUCTOR ABSENCE

- When an instructor is unable to be present for his/her scheduled class at NHCC, students will be informed as soon as possible as to whether the class is canceled or if a substitute instructor cannot be there to assist them. Class cancellations are posted on the NHCC website.

BAD WEATHER

Didactic courses at NHCC:

- College closings are announced on WCCO 830 AM radio and posted on the College website.
- Clinical rotations at the Healthcare Facilities:
- Students are expected to be there when scheduled. Facility policies override the College policy.

SAFETY STANDARDS

Each student is responsible for becoming knowledgeable regarding the expectations and policies of the MLS Program and the Clinical Affiliate where the student is placed.

- Since medical history and examination cannot reliably identify all patients infected with bloodborne or other transmissible pathogens, Blood and Body Fluid Standard Procedures are to be adhered to at all times. (Standard Precautions)
- All health care workers must routinely use appropriate barrier precautions to prevent skin and mucous membrane exposure when contact with any blood or body fluids may be anticipated.
- Gloves must be worn when handling specimens and items or surfaces soiled with blood or body fluids, when performing specimen collection procedures, or any time when exposure may occur.
- Hands must be washed immediately after gloves are removed. Hands and other skin surfaces must be washed immediately and thoroughly if contaminated with blood or other body fluids.
- All health care workers must take precautions to prevent injury caused by needles and other instruments or devices during procedures. Appropriate engineering controls, personal protective equipment, and safe work practices should be used at all times. To prevent needle stick injuries, needles should not be recapped, purposely bent or broken, removed from syringes, or otherwise manipulated by hand. Needle safety devices should be engaged as soon as possible.
- Laboratory work involves dealing with chemical reagents and other hazardous materials. For this reason, all personnel, including students, are required to wear face protection and gloves while working in designated areas of the laboratory.
- St Cloud State University and its clinical affiliates adhere to Blood and Body Fluid Standard Procedures (Standard Precautions). Instructors will outline specific course/department requirements as needed. It is required that students are trained in the details of the OSHA Blood Borne Pathogen Standards and Safety. This will be introduced in MLS 1000 Clinical Laboratory Basics, and compliance will be expected thereafter. Appropriate documentation will be kept for each student.

DRESS CODE

All students will be **required** to wear closed-toe and closed-heel non-skid or rubber soled shoes during **all class sessions**. Legs must be covered at all times. This can be accomplished by wearing long pants or hosiery. Socks/hosiery must be worn at all times. **Lab coats must be worn for all laboratory sessions. Gloves will be required for the handling of all specimens and for collecting blood samples.** If dermatological problems arise because of the gloves, cotton glove liners can be obtained. The use of perfume, cologne, and other scented products is forbidden as a courtesy to those who may have allergies to these substances. Dress code policies will be distributed prior to the clinical experience for each institution providing experiences. Failure to comply with the dress code policy may result in immediate dismissal from the Program.

POLICY ON UNSAFE BEHAVIORS IN STUDENT AND CLINICAL LABORATORIES

A major consideration of any workplace interaction is safety, and it is the responsibility of the student or employee to provide for this need in any patient/co-worker contact.

Students are legally responsible for their acts of commission and/or omission.

- Any act of unsafe behavior by a student requires evaluation by the Instructor and the Program Director. An error requires completion of a **Record of Ineffective Behavior** form (*Appendix D*), which becomes part of the student's file. Serious acts of unsafe behavior will be reviewed by the Appeals Committee to determine progression in the Program.
- Unsafe behaviors include but are not limited to:
 1. Inappropriate assumption of independence in action or decisions.

2. Violation of learning and principles from present/prior objectives dealing with specific procedures, techniques, skills, e.g. drawing the wrong patient, altering test procedures.
3. Lack of integrity demonstrated in MLS interventions, e.g. covers errors or does not report them to appropriate individuals for action.
4. Physical or mental condition endangering the welfare of others in the clinical area.
5. Failure to check name band before performing a venipuncture.
6. Failure to follow laboratory safety standards.

INTEGRITY AND PROFESSIONALISM IN THE MEDICAL LABORATORY FIELD

- It is the responsibility of each member of the profession to ensure the right of the patient to receive safe and adequate care. It follows that all responsibility of honesty in learning which is basic to competence and thus patient safety is a moral and legal responsibility of the student regarding his/her own actions and the actions of other members of the group.
- It is also the responsibility of each member of the profession to act professionally in all laboratory and classroom situations. This includes acting safely in all situations.
- Students are expected to be honest in completing all classroom and clinical assignments. Cheating, theft, plagiarism and not completing your own assignments are not acceptable. Specific definitions of and penalties for dishonesty are the prerogative of each Instructor. (See the St Cloud State University Student Handbook for related policies.)
- Examples of violations of this policy include, but are not limited to:
 1. cheating on exams in the classroom or testing center
 2. copying in part or in whole another student's written material
 3. falsifying information
 4. failure to report known clinical errors
 5. use of profane or inappropriate language
 6. displays of inappropriate anger
 7. disregarding safety protocols, including dress code policies
 8. Violations of this policy will result in immediate referral to the Appeals Committee with a recommendation for dismissal from the Medical Laboratory Science program. Any student dismissed for violation of this policy will not be eligible for re-admission consideration.

CONFIDENTIALITY

Patients and their relatives are often anxious to find out the results of laboratory tests. Under no circumstances is it ethical for a Medical Laboratory Scientist to discuss the results of a laboratory test with anyone except a Pathologist or the physicians employing the technician. The results of tests should not even be divulged to physicians not in charge of the patient. All inquiries should be referred tactfully to a Pathologist or the employing physician. In particular, a Medical Laboratory Scientist should not discuss medical or laboratory subjects with patients or their relatives and friends. Such discussions are frequently misunderstood and misinterpreted, with resultant mental anguish and possibly serious consequences. The general rule is what you see, hear, learn at the workplace should stay at the workplace. Discussions outside of the laboratory may result in breach of confidentiality and end in litigation. (*See Appendix E*).

CODE OF ETHICS

Being fully aware of my responsibilities in the practice of Medical Laboratory Science, I affirm my willingness to discharge my duties with accuracy, thoughtfulness, and care. I realize that knowledge obtained about patients in the course of my work must be treated as confidential; therefore, I will hold inviolate whatever confidences are entrusted to me by patients and physicians. I will divulge such information only to the physician treating the patient or a Pathologist in the laboratory.

I will give out no interpretations of laboratory results other than those relating to technical aspects of the tests. I will not advise physicians or others relative to the diagnosis or treatment of a disease. Only a Pathologist is qualified to act as interpreter. Even seemingly, obvious results may have an entirely different meaning from that which seems apparent. A strongly positive serologic test for syphilis does not necessarily mean that the patient has syphilis; a positive test for pregnancy does not necessarily mean that the patient is pregnant; a high blood glucose does not necessarily mean diabetes; a high white blood count with immature cells does not necessarily mean leukemia.

I recognize that my personal integrity must be pledged to the absolute reliability of my work. I will conduct myself at all times in a manner appropriate to the dignity of my profession.

A Medical Laboratory Scientist must be prepared to face occasional evidences of bad temper, and seemingly unreasonable demands or unfair criticism on the part of patients or their relatives. Such situations must be met with tact and good judgment. It must be realized that a person suffering from any ailment, regardless of its nature, may temporarily show evidence of unusual mental reactions that seem entirely unrelated to the physical ailment. Sometimes close relatives of a patient may show even more exaggerated reactions than the patient himself. A Technician should take into consideration the possible reasons for such behavior, and make a real effort to cope smoothly with occasional unpleasant situations. Be sympathetic and compassionate.

I will follow the Institution's guidelines for the release of medical data on patients. There are frequent occasions when the life of a patient depends on the speed and accuracy of laboratory tests. In the training of a Medical Laboratory Scientist, these aspects of laboratory work must constantly be remembered and emphasized.

Medical Laboratory Scientist must be ready to face emergencies with knowledge, mastery of techniques, cool minds and sound judgment. In a true emergency, they must show a willingness to serve at any hour of the day or night or on weekends of holidays, until the emergency is over. This is part of medical ethics of the Medical Laboratory Scientist just as it is a part of the medical ethics of the physician.

HEALTH RELATED ISSUES

Immune Status Requirements

Medical Laboratory Science students are assigned in clinical areas where exposure to infectious and communicable diseases is common. It is therefore required for the safety of both the student and patients that the following immunizations or documentation of acquired immunity are obtained. Note: since students will be at various clinical sites for their rotations, each clinical sites policy on immunization will supersede those indicated below.

1. **Tuberculosis Testing** - evidence of negative 2-step TB Skin Test (TST) or QuantiFERON blood test (QFT) required within previous 6 months before starting clinical rotation. If positive TB test, evidence of negative chest x-ray (CXR) and no signs or symptoms of active TB is required.
2. **Documentation of immunity is required for the following:**
 - a. Varicella (Chicken Pox)
 - b. Mumps
 - c. Rubella (German Measles)
 - d. Rubeola (Red Measles)
3. **Hepatitis B** - documentation of immunity status
4. **Pertussis (Tdap)** - documentation of vaccine strongly recommended
5. **Influenza** - annual vaccination strongly recommended

A completed Validation Immunization Record form must be turned in to the Program Director before a student can be allowed to start clinical experience rotations. Form also includes confirmation of a background check on file with the student's employer. (See Appendix F).

Health Insurance

All students are strongly advised to have adequate health insurance coverage. Any health care costs incurred during the period of time you are a student in the MLS Program will be your responsibility. Student health insurance information is available through the College. Information can be found at the information desk in Educational Services or in the Campus Center.

Worker's Compensation

It is the position of the clinical facilities and the College that, as a MLS student, you are not an employee of either the clinical facilities to which you are assigned or the College for purposes of Workers' Compensation.

Data Practices Advisory and Informed Consent

Some facilities impose certain requirements regarding the health of persons working in their facilities and may require that health information about students in clinical site programs be made available to them. The College may ask you to provide health information, which will be used to determine whether you meet a clinical site's health requirements for care providers. Health information collected is private data on you. A clinical site may refuse to allow you to participate based on data provided by you. The information provided would be disclosed as needed to the College's MLS Program Director and should any clinical site request the data, to any clinical site where you are placed as a student. You are not legally required to provide this information to the College. However, refusal to provide the information requested could mean that a clinical site might refuse to accept you. The MLS Program does not guarantee an alternative facility placement in such an event. If no alternative facility placement is available, you will be terminated from the MLS Program.

Pregnant Students

It is advised that pregnant students inform the Program Director and Instructors of this fact. This will allow the program officials to advise the student of any additional health risks that may be present because of participating in the program. Communications of such a nature will be held in confidence.

ACADEMIC STANDARDS

Expectations

1. You are expected to be in class when scheduled and to have arrived on time.
2. You are expected to notify the Instructor if you cannot attend or if you are expecting to be late.
3. You are expected to dress appropriately for class sessions and to comply with safety regulations.
4. You are expected to complete objectives / assignments in the time frame designated by the Instructor.
5. You are expected to come to class prepared.
6. You are expected to participate in class discussions and group activities as assigned.
7. You are expected to be honest in all of your coursework.
8. You are expected to behave in a professional manner.
9. You are expected to meet clinical competencies specified for each MLS course.

Grading

Evaluation of student performance includes consideration of knowledge level, skill level, and affective (non-academic) behavior. Instruments used in the evaluation process are based on written objectives and include written and oral examinations, take home and special assignments, and specific evaluation forms prepared for each rotational area and class (*see examples in Appendix G*).

The grading scale for MLS classes is as follows: 100-92%	A (A- 93 & 92%)
91-82%	B (B+ 91 & 90%, B- 83 & 82%)
81-72%	C (C+ 81 & 80%, C- 73 & 72%)
71-62%	D
61-00%	F

Program-required general education course grading scales are faculty dependent; refer to their syllabi.

Students are required to obtain a minimum grade of 72% for **each** of the MLS department courses, including **each** of the clinical courses. To obtain a minimum grade of 72% a student must meet **all*** of the following requirements for each MLS department course, including clinical courses:

- Psychomotor Laboratory Technical Evaluation minimum of 72%
- Affective Course Performance Evaluation minimum of 72%
- Didactic Course Evaluation (quizzes, exams, etc.) minimum of 72%

**A grade of no higher than a "D" will be given to a student who does not meet all of these three essential requirements for a MLS course.*

Students are required to obtain above a C- in **each** of the program-required general education courses where the class is a pre-requisite for another course required in the program, such as Chem 240 (basic organic chemistry).

Specific grading criteria for each course are found in each respective course syllabus.

The instructor or student may initiate a conference if the student is not achieving the minimum performance needed to pass a course. The instructor and student will attempt to identify the problem and determine how the student can improve their performance. If a student fails to maintain expected performance, progression in the program will be evaluated by the Program Director, Dean of Health and Human Services, and the program instructors.

Satisfactory performance demands not only on a passing level in the technical and academic skills, but also implies compliance with professional behaviors. Although professional behaviors are not graded, students are expected to develop to the stated level in the professional conduct standards. If a student

fails to achieve this performance, his or her record will be reviewed by the Program Director, Dean of Health and Human Services, and the program instructors for further recommendations. Dishonesty in any form will not be tolerated, and will be considered a cause for immediate dismissal.

Contracts outlining specific expectations for students may be utilized to ensure the student's success.

Course Pass/Fail Policy

A student who appears to be heading toward a failing grade in a course will receive notification that his/her progress is so far unsatisfactory. Instructors will be available for providing students in this situation with specific guidelines to improve their performance. If the course is ultimately failed, continuation in the Program will be evaluated.

A failing grade ("D" or "F") is to be expected in any MLS course if the student has not maintained at least an average of 72% on all evaluation tools. (Specific policy is stated under **GRADING** above)

An incomplete can be issued when extenuating circumstances apply (e.g. extended illness, surgery, maternity leave). An incomplete may only be given when a student's progress has been satisfactory (72% or better) up to the granted leave time and will be removed when the assigned work is completed, time not to exceed one semester past the granting of the incomplete.

Remedial Policies For MLS Classes

A student may be allowed to repeat any of the other MLS department courses **one time** if a grade lower than a 72% is received. The student must obtain a grade of 72% or higher in the course the second time the course is taken or be dismissed from the program. Continuation in the program course sequence following a MLS department course failure will be determined depending upon the course that is not passed (<72%) and previous coursework.

A failing grade at the time of **withdrawal** from a MLS department course will be considered to be the same circumstance as a failing grade at the completion of the course; the course may be taken a second time and must be passed, and no other MLS department course may be repeated.

A student may repeat only one failed MLS department course. A failure in a second MLS department course may result in dismissal from the Program.

Students receiving a grade lower than 72% may request remedial work from the instructor if extenuating circumstances apply. If the request is granted, the course instructor will design the remedial program. The decision to grant this request will be based upon the nature and extent of the problem. Laboratory sessions cannot be done as remedial work. Any remediation granted for a clinical course may necessitate extension of the clinical rotation period. The student must successfully complete any remedial work to remain in the Program. A student may exercise this remediation option only once.

Graduation Requirements

Completion of all of the requirements for the Bachelors of Science degree in Medical Laboratory Science:

1. A student shall earn and maintain a minimum of 72% in all MLS classes, over-all MLS GPA 2.5 or higher.
2. A student shall earn and maintain a minimum GPA of 2.5 with all general education classes required for the program.
3. Satisfactory achievement of essential competencies in all MLS clinical courses.
4. Completion of the MLS curriculum map and SCSU graduation application process; which is finalized by Records and Registration, including:
 - a. Completion of 40 liberal arts courses, supporting sciences and math courses, and all MLS courses.
 - b. A student shall earn a minimum of 30 semester credits from St Cloud State University.
 - c. A student must complete 40 credits in upper-division (300-400) courses.

Re-Admission To The MLS Program

Any student who is unable to continue in the Medical Laboratory Science program, defined as unable to attend classes for any one semester or summer session, should make an appointment with the MLS Program Director for an exit interview, in addition to completing the necessary processes for the University. **Re-admission to the MLS program is not automatic.** The MLS program faculty will carefully evaluate each request for re-admission. (See *Appendix H*).

Ongoing evaluation of the MLS curriculum results in semester and yearly curriculum revisions. For this reason, students who have been out of the MLS program for one calendar year or longer may be required to attend classes and/or complete laboratory units which represent new content or material which has been re-sequenced into a new semester.

Students will generally be considered for re-admission to the program only once, unless extenuating circumstances warrant a second re-admission consideration, e.g. the student becomes ill on re-admission and has to withdraw a second time.

POSSIBLE CAUSES FOR DISMISSAL

Include but are not limited to: (this list may not be complete)

- Violation of Integrity and Professionalism Policy
- Any act of unsafe behavior
- Absenteeism or tardiness deemed to be excessive
- Inability to meet general course competencies
- Failure to obtain a minimum of 72% in each MLS course required for the Program
- Disqualification as a result of the criminal background check
- Inability to complete the clinical courses as scheduled as a result of health issues
- Dismissal from a clinical rotation by an assigned healthcare facility for any reason
- Other issues may arise where it is deemed necessary to dismiss a student

OTHER ITEMS

Professional Liability Insurance

All students enrolled in the Medical Laboratory Science program are required to carry professional liability insurance during the clinical experience. This coverage may be obtained through a blanket policy negotiated by the State of Minnesota or independently by the individual. Students will be assessed a fee for the blanket policy for the semester of the clinical experience.

ASCP (American Society for Clinical Pathology)

ASCLS (American Society for Clinical Laboratory Science)

Students are strongly encouraged to join these organizations as student members. Membership includes privileges at both the national and state levels. Notices of area and regional meetings will be posted and students are invited and encouraged to attend. Information on these societies is available from the Program Director.

American Society for Clinical Laboratory Science Oath

As a clinical laboratory professional, I acknowledge my professional responsibility to:

- Placing patients' welfare above my own needs and desires.
- Ensuring that each patient receives care that is safe, effective, efficient, timely, equitable and patient-centered.
- Maintaining the dignity and respect for my profession.
- Promoting the advancement of my profession.
- Ensuring collegial relationships within the clinical laboratory and with other patient care providers.
- Improving access to laboratory services.
- Promoting equitable distribution of healthcare resources.
- Complying with laws and regulations and protecting patients from others' incompetent or illegal practice
- Changing conditions where necessary to advance the best interests of patients.

Venipuncture (Blood Drawing)

A fundamental task of a Medical Laboratory Scientist is performing venipunctures. General techniques were part of the student's MLT program and for some continued into their employment. Any additional training will occur during a student's clinical rotations if indicated by employer. Students will be accompanied by an experienced staff person.

STUDENT CONFERENCES

Students will be asked to meet with the Program Director on a semester basis during the courses at NHCC. They are encouraged to meet with the individual instructors as needed throughout the courses. During the clinical rotations, there will be student/Program Director meetings scheduled as needed. A student can request a conference with an instructor or the program director at any time.

REFUND POLICY

Refund of tuition payment shall be made to a student who officially withdraws from Medical Laboratory Science courses according to the established policies of St Cloud State University. Refer to the SCSU Student Handbook for details.

EMPLOYER CLINICAL ROTATION SUPPORT (refer to page 3 for more details)

Employed Student (at clinical site)

Students are required to contact their employer prior to starting the SCSU Medical Laboratory Science program to determine the ability of their employer to provide them with their clinical rotation. Written verification of the clinical affiliate's ability to provide a clinical rotation must be in writing from their employer.

Non-employed Student (at clinical site)

Students are not admitted into the program unless they are currently working in a clinical lab as an MLT (specimen processing, translation services, do not apply) not employed when they start the MLS program need to seek and obtain employment. If a student loses their employment once they have started the 400 series of MLS classes (exception MLS 406 & 407) they will be advised that they need to seek new employment in a clinical system that will support their rotations. Alternate clinical sites are very difficult to arrange and cannot be counted on to support full rotations. Occasionally alternate sites can help with a single rotation. A signature form is required that indicates the student has a full understanding of the conditions for completion and alternate status. Students would be placed on an alternate student list and evaluated using their academic record (MLS course GPA and overall GPA) and recommendations from the MLS faculty; including the Program Director after the fall semester of their second year in the program (full-time). Providing the students evaluation and faculty recommendations are in order, the student **may** have the opportunity to interview with an alternate clinical affiliate, but admission to a clinical rotation is not guaranteed. The clinical site has the final authority on admittance of a student into their facility. Placement at a clinical site will be scheduled after the third semester (full-time) to be completed within the span of two semesters as much as possible. A student that has lost employment has two semesters to gain employment before their spot in the program will be dismissed. Re-admission would be after the student gained employment as an MLT and had gotten the statement of support and recommendations from their new employer.

CERTIFICATION EXAMINATION

Specific information regarding the certification examination will be available at any time during the student’s educational program from the Program Director and can also be found on the ASCP website (<http://www.ascp.org/Board-of-Certification>). In general, application to sit for the Board of Certification (BOC-ASCP) examination should be made in mid-April if possible. The three month period of June 1- August 31 is the usual testing period timeframe for SCSU MLS program students completing Spring semester rotations, but this will depend on when a student has completed their courses and all clinical rotations. This is a computer exam, administered by a testing center, and contains approximately 100 - 150 questions.

Passing this exam is not a requirement for obtaining the MLS BS degree; however inability to pass this exam may result in inability to obtain, or maintain, employment.

Students are highly encouraged to sit for the certification exam within one to three months of program completion.

ADDITIONAL EXPENSES

Immunizations/Tuberculosis test/Physical Exam

Most insurance companies cover costs

County of residence may provide immunizations at low/no cost

Liability Insurance

Assessed automatically by SCSU for the clinical semester

Certification Examination Fee (ASCP – BOC)

Parking fees during clinical experience

Charges range from no charge to \$2.50-\$5 per day

APPROX. COST

varies

\$20 (approximate)

\$240 (approximate, non-refundable)

varies by site

GRIEVANCE PROCEDURE

The student has the right to see all of his/her grades and evaluations, and also has the right to disagree with an instructor's perceptions or judgments. He/she may request a conference with an instructor to discuss these or any other related concerns. If a student has concerns regarding a program policy or procedure, the Program Director should be contacted. If the issue involves the Program Director, the Dean should be contacted. The student should submit in writing their grievance and keep an original copy for themselves. Below is the standard protocol to address any grievance.

STUDENT PROTOCOL: DISCUSSION OF PROBLEMS/CONCERNS WITH FACULTY

1. If a problem arises, it is expected that:
2. The student/Instructor would approach the Instructor/student first to rectify the situation.
3. If that does not resolve the issue, the student/Instructor should inform the MLS Program Director.
4. The Dean of Health and Human Services will be informed of the issues involved.
5. The student/Instructor has the option of initiating an Appeals Committee meeting. (see procedure below)
6. There is also a specific grievance procedure available through the College; refer to the SCSU Student Handbook (available online on the Universities website).

INITIATING AN APPEALS COMMITTEE MEETING

1. The Instructor/student initiating the meeting notifies the Program Director.

The committee members include:

- two volunteer students (preferably one from each class)
 - three volunteer MLS program faculty members
 - the MLS Program Director
 - the St Cloud State University Dean of Health and Human Services
2. Prior to the meeting, the Instructor/student will provide information to the committee regarding the ineffective behavior and other related material. The student may present any written material that may be significant for review.
 3. A committee member notifies the student as to the time and place of the meeting. Review will occur within 48 hours of the request if possible.
 4. The student/Instructor has the option to be present at the meeting during the presentation of the situation.
 5. Written records will be kept of the meeting. In addition, a tape recording may be taken with the individuals' permission.
 6. The committee will discuss the situation and make a decision as to the course of action. If the recommended action is for dismissal from the program, the situation will be presented for approval of the entire faculty.
 7. The student will be notified of the committee's decision within 24 hours if possible.

Appeals Committee Options Related to Ineffective Behavior

Warning Letter

This is to inform a student that their status (academic or nonacademic) in the MLS program has reached a point where change is imperative to avoid placement on continuation contract status. The student will sign the warning letter, and it becomes a part of the student's file. The student will receive a copy of the signed letter.

Situations where a warning letter would be appropriate:

- when the same type of ineffective behavior is documented more than once
- when different ineffective behaviors are documented
- when academic progress is in danger

Continuation Contract

This is to inform a student that their continuation in the MLS program is in jeopardy. The contract should be set-up by the instructor, the MLS Program Director, and the Dean. It will consist of a specified plan of action and timeframe for improving behavior. The student and the MLS Program

Director will sign the contract, and it becomes a part of the student's file. The student and the instructor(s) who will be working with the student during the timeframe of the contract will each receive a copy of the signed contract.

Situations where a continuation contract would be appropriate:

- when an Instructor makes a recommendation to the Appeals Committee based on past and/or present ineffective behavior
- when health care facility staff have identified and documented grave concerns regarding a student's clinical performance
- when the affiliated agency refuses to allow a student to perform in the clinical area
- when faculty as a group have concerns regarding a student's suitability for MLS

Unusual Incident

If a single ineffective behavior is of such magnitude that dismissal from the program is considered, the warning letter and continuation contract would not apply. This situation would be taken directly to the Appeals Committee for recommendation to the faculty for a final decision. Any student dismissed from the MLS program by faculty action, with the exceptions of dishonesty and failure to adhere to safety standards, can request re-admission consideration by following the general policies stated for re-admission by the MLS program.

APPENDIX A

**MLS PROGRAM
INFORMATION SHEET
(MLS Curriculum Map/Course Sequencing/Schedule)**

MEDICAL LABORATORY SCIENCE (MLS)

Purpose:

This program prepares graduates to work as members of the health care team in performing laboratory procedures that aid the physician in diagnosis and treatment of disease.

Before You Apply – Prerequisites For Admission To The Program:

Applicants must be certified MLT's or obtain their certification within the first semester after applying and being accepted into the program. All students must provide verifiable documentation of their certification when they apply (or within first semester).

There is a formal application process that is separate from the college admission application. For further information please call the SCSU office of Records and Registration at (320) 308-2111 or log onto registrar@stcloudstate.edu

2+2 Completion Medical Laboratory Science BS Degree	
School of Health and Human Services: Phone 320-308-4894 or www.stcloudstate.edu/shhs	
MLS Program Director: Louise Millis	
SCSU Office: Wick 269, Phone: 320-308-5438, Email: lmillis@stcloudstate.edu NHCC Office: BHCC 243, Phone: 763-424-0963	
Medical Laboratory Technician (MLT) Curriculum Map below (1 st four semesters) with Pre-Requisite Course Work (course work not completed in students MLT program is completed as part of the MLS Completion (2+2) Program) MLS Completion Program Course Work follows MLT Curriculum Map	
Requirements for Admission to the MLS Completion Program Current MLT Certification and Employment as an MLT in a Clinical System that will Support their Clinical Internship	
First Semester	Second Semester
BIOL 103 (3cr) Human Biology CHEM 210 (4cr) General Chemistry I MATH 112 (3cr) College Algebra MLS 200 (2cr) Medical Laboratory Basics PHIL 194 (3cr) Clinical Reasoning Total semester credits= 15	BIOL 151 (4cr) Cell Function and Inheritance CHEM 211 (4cr) General Chemistry 2 NHCC ENGL 1201 (4cr) College Writing I MLS 303 (2cr) Fund. Medical Immunology MLS 306 (2cr) Fund. Medical Microscopy & Urinalysis Total semester credits=16
Third Semester	Fourth Semester - MLT-level clinical rotations
MLS 301 (4cr) Fund. Medical Hematology MLS 302 (4cr) Fund. Medical Chemistry MLS 304 (4cr) Fund. Medical Microbiology MLS 305 (3cr) Fund. Medical Immunohematology Total semester credits=15	MLS 301 (2cr) Fund. Medical Hematology MLS 302 (2cr) Fund. Medical Chemistry MLS 304 (2cr) Fund. Medical Microbiology MLS 305 (2cr) Fund. Medical Immunohematology MLS 306 (2cr) Fund. Medical Phlebotomy & Urinalysis CMST 192 (3cr) Introduction to Communication Studies Total semester credits=14
Full-Time, Two-Year Curriculum and Suggested Sequence <i>¹Students must complete SCSU Graduation Requirements including all 10 Goal areas of the Liberal Education Courses (MnTransfer)</i>	
ENGL 191 (4cr) Introduction to Rhetorical & Analytical Writing – student may need ENGL 291 (2cr) Introduction to Analytical and Rhetorical Writing (for transfer students, to complete ENGL requirement) STAT 193 (3cr) Statistical Thinking	

Fifth Semester	Sixth Semester	Summer Session
² CHEM 240 (4cr) Basic Organic Chemistry MLS 310 (2cr) Anatomy & Physiology for MLS majors MLS 407 (2cr) Lab. Management/Edu Total semester credits=8	² CHEM 240 (4cr) Basic Biochemistry MLS 312 (2cr) Molecular Pathology for MLS Majors MLS 406 (2cr) Clinical Microscopy Total semester credits=8	MLS 403 (2cr) Clinical Immunology Total semester credits=2
Seventh Semester	Eighth Semester	Summer/Fall/Beyond <i>MLS-level clinical internship</i>
MLS 401 (2cr) Clinical Hematology MLS 404 (3cr) Clinical Microbiology Total semester credits=5	MLS 402 (3cr) Clinical Chemistry MLS 405 (3cr) Clinical Immunohematology Total semester credits=6	MLS 401 (2cr) Clinical Hematology MLS 402 (2cr) Clinical Chemistry MLS 404 (2cr) Clinical Microbiology MLS 405 (2cr) Clinical Immunohematology MLS 406 (1cr) Urinalysis and Body Fluids MLS 407 (2cr) Lab. Management/Edu MLS 444 (2cr) Internship Total semester credits=13

¹SCSU graduation requirements finalized by Records and Registration include the following:

1. Completion of 40 liberal education courses, supporting sciences and math courses, and all MLS courses.
2. A student shall earn a minimum of 30 semester credits from St Cloud State University.
3. A student must complete 40 credits in upper-division (300-400) courses.

²Chem 240 Organic chemistry and Chem 241 can be taken prior to admittance to the MLS program. Note completion of these classes does not guarantee admittance. See advisor for other potential options to replace Chem 240 and Chem 241.

Contact Information

Louise Millis MLS Program Director
269 Wick Science Building
720 Fourth Avenue South
St. Cloud, MN 56301
SCSU phone: 320-308-5438
lmillis@stcloudstate.edu

[Alternate Contact Information](#)

243 Bioscience & Health Careers Center
7411 85th Avenue North
Brooklyn Park, MN 55445
NHCC phone: 763-424-0963
lmillis@nhcc.edu

Program Accreditation

Program is Accredited

National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

5600 North River Road, Suite 720
Rosemont, IL 60018-5119
Phone: 847-939-3597
Website: www.naacls.org

To receive this information in an alternative format, call

NHCC: 763-493-0555 (763-493-0558 TTY)

SCSU: 320-308-4080 ((320) 308-4704 TTY)

APPENDIX B

ESSENTIAL FUNTIONS

Small Motor/Manipulative Skills

- Hand/Arm Control - Frequent
- Fingering - Frequent * Fine Manipulation
 - * Writing
 - * Keying/Typing
- Simple Grasping – Frequent

Strength

- Lifting/carrying up to 10 pounds – Occasional

Computational Skills

- Metric Conversions - Occasional
- Algebraic Problem Solving – Occasional

Attentiveness

- Duration (Maintain Alertness) - Constant
- Intensity (Maintain Concentration) – Constant

Memory Skills

- Short Term Memory - Constant
- Long Term Memory – Constant

Reasoning Skills

- Transfer Knowledge - Frequent
- Process Information - Frequent
- Problem Solving - Frequent
- Prioritize Tasks - Frequent
- Evaluate Outcomes - Frequent
- Comprehension – Frequent

Emotional Stability

- Responsibility - Constant
- Adaptability - Frequent
- Accountability - Constant
- Appropriate Response – Constant

Possible Exposure

- Toxic/caustic chemicals – Frequent (dependent upon type of procedures)
- Fumes/Odors – Frequent (noxious smells from various types of tissues and chemicals)
- Mutagenic/Carcinogenic materials – Rare (dependent upon type of procedures)
- Blood/Body Fluid Pathogens
 - * Standard Precautions are incorporated into everything laboratory personnel do to eliminate exposure.
- Airborne Pathogens - Rare
- Noise - Constant

Occupational Factors

Positions available in the field of medical laboratory science may entail all or combinations of the following.

- Appearance/Hygiene Policies
- Possible Shift Work, depending on the position
- Customer/Public Interactions
- Working under specific instructions or independent action or judgment
- Evaluating Performance of Others

- Performing Multiple Tasks Concurrently
- Working Alone or Apart, in Physical Isolation from Others
- Working under Time Constraints
- Team Work
- Dealing with the Unexpected
- Handling Stressful or Emotional Situations
- Weighing and/or measuring
- Directing, controlling or planning activities of others
- Attaining precise set limits, tolerance and standards

SCSU Medical Laboratory Science Program
Essential Functions
SIGNATURE FORM

Essential functions represent the essential nonacademic requirements of the program that a student must be able to master to become employable. Examples of this program's essential functions are provided below. The National Accrediting Agency for Clinical Laboratory Science, in compliance with the Americans with Disabilities Act of 1990 and the Rehabilitation Act of 1973, requires us to define and publish essential functions. *If you are not sure that you will be able to meet these essential functions please consult with the MLS Program Director at 320-308-5438 for further information and to discuss your individual situation.* If restrictions are necessary due to a disability, reasonable accommodations will be made. To discuss accommodations, the student must contact *the MLS Program Director at 320-308-5438.*

I, _____
PRINT NAME

have read and have understood the essential functions for the Medical Laboratory Science Program. I believe that I can perform the essential functions.

Signature: _____ **Date:** _____

APPENDIX C

STUDENT ABSENCE/TARDINESS REPORT

ST CLOUD STATE UNIVERSITY
MEDICAL LABORATORY SCIENCE PROGRAM
STUDENT ABSENCE/TARDINESS REPORT

Student _____ Date _____

Course _____ Start time _____

Time called in and/or arrived _____

Explanation _____

Course Instructor _____

Program Director _____

Documentation required? Yes _____ No _____

Excused absence? Yes _____ No _____ NA _____

Excused lateness? Yes _____ No _____ NA _____

Examination missed? Yes _____ No _____

PRIOR PERMISSION

Requested Absence - Date(s) _____

Reason for Absence: _____

Approved? Yes _____ No _____

Instructor _____ Date _____

Program Director _____ Date _____

Reason if Unapproved _____

Makeup Work - Schedule

Student signature _____ Date _____

APPENDIX D

RECORD OF INEFFECTIVE BEHAVIOR

RECORD OF INEFFECTIVE BEHAVIOR (ROIB)

The purpose of the ROIB is to document identified student behavior that may hinder maximum professional growth and competence objectively and clearly. Faculty believes that students can benefit from immediate feedback related to performance. The ROIB can provide this feedback, plus the opportunity to document data and perceptions so that student and instructor may discuss the behavior. Faculty hopes this record can be the springboard for change and improvement in performance. The record remains in the student file.

DEFINITIONS:

Behavior: affective, cognitive, or psychomotor performance

Ineffective Behavior: performance that the Instructor judges to be unsatisfactory, inconsistent, or non-compliant as related to program policies, course requirements, and/or clinical competencies

Examples of ineffective behaviors include but are not limited to:

- any breach of integrity or honesty
- discussion of patient data in a public area
- failure to follow Standard Precautions or safety procedures
- failure to obtain supervision from an instructor when necessary
- use of language and mannerisms that are offensive to patients and others in the clinical area
- failure to notify instructors in case of illness or anticipated tardiness
- unexcused absences

PROCEDURE FOR IMPLEMENTATION OF THE RECORD OF INEFFECTIVE BEHAVIOR

1. The instructor immediately notifies the student of an ineffective behavior.
2. The student is informed of the significance of that behavior.
3. The instructor decides immediately if the student is permitted to remain in the classroom or clinical area.
4. If the student is dismissed, a conference must occur before the student is permitted to return to the classroom or clinical area.
5. A ROIB will be completed whenever a student's performance is deemed ineffective.
6. The ROIB will be read by the student and discussed with the instructor.
7. The student and the instructor will sign the ROIB.
8. A copy will be given/sent to the Program Director and it will be placed in the student's file.
9. The instructor or Program Director will initiate a review regarding the following situations:
 - a. occurrence of a second incident in the same academic semester.
 - b. occurrence of a similar incident, as already documented, in any later semester.

**ST CLOUD STATE UNIVERSITY
MEDICAL LABORATORY SCIENCE PROGRAM
RECORD OF INEFFECTIVE BEHAVIOR**

Student _____ Date _____

Course _____

Course Instructor _____

Program Director _____

Ineffective Behavior(s):

Factual Description by Faculty of Ineffective Behavior:

Faculty Signature _____

Student Response:

I have read this record and discussed it with my instructor.

Student Signature _____

APPENDIX E

OATH OF CONFIDENTIALITY

OATH OF CONFIDENTIALITY

As a student enrolled in courses at SCSU and as a healthcare professional with access to patient information, I agree to maintain the confidentiality of all information that is obtained, including patient medical, personal and financial information. I understand that Minnesota and Federal law protects the confidentiality of such information and that I will be personally liable for any breach of this duty. I hereby hold the organization for which I work, and SCSU, harmless for any such breach.

Student
signature: _____ Date: _____

Student name typed or clearly printed: _____

APPENDIX F

IMMUNIZATION RECORD AND BACKGROUND CHECK VALIDATION FORMS

**ST CLOUD STATE UNIVERSITY
MEDICAL LABORATORY SCIENCE PROGRAM
Immunization Record**

All students are expected to make arrangements as necessary for the **required attestation of immunization** that their clinical site requires **BEFORE** being their clinical rotation. Since most students are working MLT's they should compare their personal and work immunization records with the information below and then submit the **Validation Form** signed by their employer. **Note Validation Form also includes Background Check confirmation on file at student's employer.**

MLS--most clinical rotations usually begin after June of the second year.

Student _____ Date _____

Clinician - please print or stamp the following:

Clinician name _____ Facility _____

Required Documentation:

Tuberculosis Testing (within previous 6 months before starting clinicals) TST or QFT Result* (pos or neg):	Test date
*If positive, evidence of a negative CXR. Provider <u>must</u> attest that student shows no signs/symptoms of active TB.	
Provider signature:	
Varicella (Chicken Pox) - documentation of immunity REQUIRED	Date(s) for one method
1 Reliable history of VZV or shingles	
2 Positive serology test	
3 Two doses of vaccine 1st dose	1
2nd dose	2
Mumps - documentation of immunity REQUIRED	Date(s) for one method DOB
1 Born before 1957	
2 MD diagnosed mumps	
3 Two doses of M or MMR 1st dose	1
2nd dose	2
4 Positive serology	
Rubella (German Measles) - documentation of immunity REQUIRED	Date for one method
1 One dose of MR or MMR	
2 Positive serology test	

Required Documentation:

Rubeola (Red Measles) - documentation of immunity REQUIRED		Date(s) for one method
1 Born before 1957		DOB
<u>Reliable history or MD diagnosed mumps</u> <u>Positive serology test</u> One dose vaccine		_____
2 Born in or after 1957		DOB
<u>MD diagnosed</u> <u>measles</u>		_____
Two doses vaccine	1st dose	1
	2nd dose	2
Positive serology _____		_____
Hepatitis B - documentation of immunity status REQUIRED		Date(s) for one method
1 History of disease		_____
2 Positive serology test		_____
3 HB vaccine	1st dose	1
	2nd dose	2
	3rd dose	3
4 Signed waiver declining vaccination		_____
Pertussis (Tdap) - documentation of vaccine strongly recommended		_____
One dose of adult Tdap		_____
Influenza - strongly recommended		_____
Annual vaccination(s)		_____

Clinician - please sign:

I have verified immunization status for the student named above.

Signature of clinician

Date

**Clinical Rotation Background Check and Immunization Validation Form
St. Cloud State University Medical Laboratory Science MLT to MLS (2+2) Program**

Student: _____

The listed student is enrolled in the St. Cloud State University Medical Laboratory Science (MLS) Program. This program allows an employee the opportunity to further their educational status and obtain national certification as a Medical Laboratory Scientist (MLS). SCSU is accredited by the Higher Learning Commission of the North Central Association of Colleges and Universities and the MLS program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences.

Students enrolled in this program must have had a background check and immunizations that meet the standards of the laboratory where they will receive their clinical internships. Please indicate the status of the above listed student:

_____ The student has a background check on file that meets the requirements of our laboratory.

_____ The student DOES NOT have a background check on file that meets the requirements of our laboratory.

_____ The student's immunizations meet the requirements of our laboratory.

_____ The student's immunizations DO NOT meet the requirements of our laboratory.

If the student does not have a background check that meets the requirements of your laboratory, SCSU will require the student to obtain one.

If the student does not have immunizations that meet the requirements of your laboratory, SCSU will require the student to obtain them (see Student Handbook for document)

Supervisor/Laboratory Manager Signature: _____

Supervisor/Laboratory Manager (name printed): _____

E-mail: _____ Phone Number: _____

Facility Name: _____

Address: _____

City/State/Zip Code: _____ Date: _____

Any questions, please contact:

Louise Millis MLS Program Director, SCSU
Office phone: 320-308-5438 Fax: 320-308-4166

lmillis@stcloudstate.edu

APPENDIX G

LAB COMPETANCY CHECKLIST EXAMPLE
(Actual forms may vary)

St. CLOUD STATE UNIVERSITY
MLS Chemistry and Urinalysis Competency Checklist

STUDENT: _____

AFFILIATE: _____

ROTATION DATES: _____

Upon completion of this clinical rotation, the student will demonstrate understanding of the theory and demonstrate competency in each of the following skills according to the performance objectives provided. Use instructor initials to indicate level of achievement. Comment as needed.

Levels of Achievement:

- 1: Discussed: Process or skill was discussed including principle and student understanding.
- 2: Demonstrated: Process or skill was performed by the preceptor while the student was observing.
- 3: Practiced: Student has practiced the process or skill under supervision of the preceptor with no demonstration of competency.
- 4: Maximum Supervision: Student has performed the process or skill with maximum supervision by the preceptor. Competency is not yet fully developed.
- 5: Minimum Supervision: Student can perform the process or skill with little or no direct supervision. Competency is fully mastered.

QC	Expected Level	Score	Date	Comments
Performs daily/shift QC with review using Westgard rules	5			
QC review identifying acceptability and any outliers using Westgard rules	5			
Troubleshoots unacceptable QC within the protocols of the lab policies	5			
Determines corrective action with documentation for shifts, trends etc. during cumulative QC review	5			
Demonstrates acceptable pipetting technique	5			
Demonstrates proper reconstitution of QC, calibrators and other reagents	5			
Instrumentation	Expected Level	Score	Date	Comments
Performs daily instrument start up and maintenance with correct documentation	4			
Performs weekly maintenance with correct documentation	4			
Performs monthly maintenance with correct documentation	4			
Has knowledge of instrument methodology and is able to understand how a result is determined	1			
Performs calibration with sample validation (<i>Please attach copy of documentation</i>)	4			

Accurately documents any instrumentation errors indicating appropriate corrective action (<i>provide documentation of 2 troubleshooting incidents for each major analyzer in the department</i>)	4			
Performs troubleshooting procedures indicated by an instrument error for all major chemistry analyzers	4			
Patient Results	Expected Level	Score	Date	Comments
Correctly verified patient ID and specimen type including correct tubes, collection, special handling and/or priority and resolves any issue prior to testing	5			
Test performance with efficient and accurate skill on all major chemistry analyzers (Lipid panels, TDMS, lytes, BMP, CMP, Thyroid panels, Liver enzymes, cardiac, hormones etc.) <i>Please attach list of testing completed.</i>	5			
Correctly compares patient results with reference ranges	5			
Identifies critical values and takes appropriate action per lab policy	5			
Uses delta check for patient results	5			
Documents notification of critical values per lab protocol	5			
Correctly enters patient results into LIS	5			
Demonstrates knowledge of linear limits and can perform correct procedures when patient samples are outside these limits	5			
Follows protocols for and demonstrates sample dilutions (<i>Provide documentation of 3 samples</i>).	5			
Performs manual LDL, Creatinine clearance, 24 hour urine and anion gap calculations (<i>Attach work</i>)	5			
Can correlate results with disease diagnosis/prognosis	4			
Can correlate chemistry results with results from other departments to assess the total diagnosis or prognosis of the patient	4			
Demonstrates superior multi-tasking within the chemistry department	5			
Special Chemistry	Expected Level	Score	Date	Comments
List Special Chemistry Techniques discussed or performed	1-4			
	1-4			
Arterial Blood Gases	Expected Level	Score	Date	Comments
Has a working knowledge of acid base balance with in the blood	1			
Follows specimen collection and sample integrity guidelines for an arterial sample	5			
Performs ABG analysis	5			
Can distinguish between venous and arterial results	4			
Can correlate results to patient diagnosis and prognosis	4			
Urinalysis	Expected Level	Score	Date	Comments
Correctly performs macroscopic analysis of urines including all characteristics.	5			

Is able to correlate macroscopic characteristics to constituents of the urine.	5			
Correctly performs urine dipstick	5			
Correctly performs confirmatory testing with QC (List tests in comment section)	5			
Correctly performs microscopic analysis	5			
Correctly identifies:	5	Check Off		
	WBCs			
	RBCs			
	Bacteria			
	Yeast			
	Sperm			
	Epis			
	Renal			
	Tublar			
	Casts:			
	Hyaline			
	Waxy			
	Granular			
	Crystals:			
	Uric			
	Ca+ Ox			
	Amorph	urates	phospates	
	Artifacts			
Correctly correlates microscopic structures to disease states and renal function	4			
Can operate and perform analysis on urinalysis instrumentation	5			
Can correlate chemical results to microscopic evaluation	5			
Performs maintenance (daily/weekly) on UA instrument	4			
Performs and evaluates UA cumulative QC with proper documentation, follow up and troubleshooting	4			
Affective Skills	Expected Level	Score	Date	Comments
Maintains strict patient confidentiality: HIPAA	5			
Adheres to SOPs and refers to them appropriately	5			
Relates to co-workers in a positive manner	5			
Uses all safety devices correctly and consistently	5			
Completes all required tasks during the shift on schedule	5			
Follows dress protocol	5			
Leaves work area clean, stocked and organized for the following shift	5			
Relays all important information to next shift in an affective manner	5			
Maintains a satisfactory attendance; appropriately communicates tardiness, early departures and absences	5			
Accepts criticism and guidance openly	5			
Performs work willingly and independently; uses time constructively	5			

Based on the performance, would you consider this student for employment? Yes No

Student: _____ Date: _____

Preceptor: _____ Date: _____

Additional Comments:

APPENDIX H

POLICY AND PROCEDURES FOR RE-ADMISSION TO THE MLS PROGRAM

**ST CLOUD STATE UNIVERSITY
MEDICAL LABORATORY SCIENCE
POLICY AND PROCEDURES FOR RE-ADMISSION TO THE PROGRAM**

General Policies Regarding Re-admission to the MLS Program

1. Any student who is unable to continue in the Medical Laboratory Science program, defined as unable to attend classes for any one semester or summer session, should make an appointment with the MLS Program Director for an exit interview in addition to completing the necessary processes for the College.
2. Re-admission to the MLS program is not automatic. Each request for re-admission will be carefully evaluated by the MLS faculty.
3. Any student desiring consideration for re-admission must follow the Re-admission Procedures.
4. Ongoing evaluation of the MLS curriculum results in semester and yearly curriculum revisions. Due to this fact, students who have been out of the MLS program for longer than one calendar year may be required to attend classes and/or complete laboratory units which present new content or material which has been re-sequenced into a new semester.
5. Students will generally be considered for re-admission to the program only once, unless extenuating circumstances warrant a second re-admission consideration, e.g. student becomes ill on re-admission and has to withdraw from program.

RE-ADMISSION PROCEDURE

A Re-admission Request Form may be obtained from the MLS Program Director.

1. **A STUDENT REQUESTING REVIEW FOR RE-ADMISSION TO THE MLS PROGRAM WILL:**
 - a. submit a complete copy of the Re-admission Request Form to the MLS Program Director for review by the instructors and Program Director.
 - b. submit this request to the MLS Program Director no later than the first week of the semester THAT PRECEDES the semester to which the student wants to be re-admitted i.e. for re-admission to Spring semester; request must be made first week of Fall Semester.
 - c. provide transcripts and other data (health statements, etc.) to verify any statements made in re-admission request.
 2. **CONSIDERATION FOR RE-ADMISSION WILL BE BASED UPON:**
 - a. overall College GPA - 2.5 minimum.
 - b. at least a "C" in each general education (non-MLS) math and science course that are part of the MLS curriculum.
 - c. all courses completed at a level of "C" or better since leaving program.
 - d. completion of prerequisite courses necessary for re-entering during the requested semester.
 - e. achievement and evaluations in completed courses.
 - f. evidence of resolution of sources cited as reasons for leaving MLS program.
 - g. course load at the time of leaving the program.
 - h. course load to be carried, if re-admitted.
 - i. work load - hours/week - in past when in program and if re-admitted.
 - j. space availability in MLS program.
 3. **THE DECISION BY THE FACULTY ON THE REQUEST FOR RE-ADMISSION WILL BE COMMUNICATED IN WRITING.**
 4. **A STUDENT WHO IS APPROVED FOR RE-ADMISSION TO THE MLS PROGRAM WILL:**
 - a. fulfill all conditions of re-admission before registration for MLS is allowed.
- *Specified testing in theory or laboratory skill performance may be required of individuals based on review of their performance while in the MLS program.

**ST CLOUD STATE UNIVERSITY
MEDICAL LABORATORY SCIENCE
RE-ADMISSION REQUEST FORM**

Student: _____

Address: _____

Phone: _____

Semester/Year last attended MLS classes: _____

Semester/Year desiring re-admission: _____

Student ID #: _____

DIRECTIONS: Complete this form and submit according to directions in Re-admission Procedure. WRITE LEGIBLY or type. Be concise and pertinent in your statements. Remember to **include all relevant documentation** as described in the Re-admission Procedure.

DATA ON **LAST TERM ENROLLED** IN MLS PROGRAM:

1. List courses being carried at that time.

2. Work load - previous hours/week and place of employment.

3. Other contributing pressures, e.g. health, family, personal. Describe briefly.

4. Statement of reason(s) for leaving MLS program - cite major source of difficulty.

RE-ADMISSION REQUEST FORM

DATA SINCE LEAVING MLS PROGRAM:

1. Course work completed - with grades.

2. Work load - hours/week at present.

RATIONALE FOR DESIRING RE-ADMISSION. Based on reasons for leaving program, why should you be allowed to re-enter at this time? State if any contributing pressures have been resolved or have changed.

DATA ON COURSE WORK TO BE COMPLETED:

1. Courses in the MLS Curriculum in addition to MLS courses yet to be completed are:

2. Work load to be carried if re-admitted - hours/week. Is it a necessity that you work?

APPENDIX I

**STUDENT HANDBOOK
ACKNOWLEDGMENT
and
STUDENT EMPLOYMENT
ACKNOWLEDGMENT
FORM**

**ST CLOUD STATE UNIVERSITY
MEDICAL LABORATORY SCIENCE
ACKNOWLEDGMENT FORM**

Student Name _____
Please Print

St. Cloud State University Student ID# _____

Student Handbook Acknowledgment

I hereby acknowledge that I have received a copy of the MLS Student Handbook (electronic). I certify that I will read the document carefully and will comply with the policies of the program as stated herein. **I recognize I need to retain the manual until I have completed all of my course work. I agree to accept the consequences of non-compliance with any policies stated herein.** If I have questions, I will contact the MLS Program Director or Dean of Health and Human Services for clarification.

(Statement is to be signed during the MLS program orientation prior to beginning MLS program courses, or upon entering the program at a later date).

Student signature _____ **Date** _____

Student current place of employment _____

Student Employment Acknowledgment

I hereby acknowledge that if I lose my MLT employment while in the program, it is my responsibility to gain employment before the next semester begins. If employment cannot be secured the student will need to take a leave of absence from the program until such time as they have regained MLT employment. Students can have a leave of absence up to one year, term would begin at the end of the semester that they lose of their employment. All students need to update their employment stasis each semester, so we are able to verify employment.

Student signature _____ **Date** _____

