



Turtle Mountain

Community College

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Medical Laboratory Technician

Program Handbook

Policies and Guidelines for Clinical Instruction



Developed by Mr. Wayne Olson
Revised: 8/19, 12/20, 6/21
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Program Director, Medical Laboratory Technician

Turtle Mountain Community College is an affirmative action / equal opportunity institution
Accredited by the Higher Learning Commission
230 South LaSalle Street, Suite 7-500, Chicago IL
60604

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Medical Laboratory Technician

Mission Statement

The Turtle Mountain Community College (TMCC) Medical Laboratory Technician Program is committed to providing an educational program consistent with the standards outlined by the NAACLS 5600 N. River Rd, Suite 720 Rosemont IL 60018-5119; phone: 773.714.8880; fax: 773.714.8886; info@naacls.org. The purpose of the TMCC Medical Laboratory Technician Program is to provide students the training necessary to contribute to the highest quality in health care by offering a comprehensive laboratory technician training program. The faculty strive to provide an environment that promotes personal, professional, and academic growth while including the cultural and social heritage of the Turtle Mountain Band of Chippewa throughout the curriculum.

Medical Laboratory Technician

College Faculty and Staff

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Introduction

Welcome to the Medical Laboratory Technician Program at Turtle Mountain Community College (TMCC) The Medical Laboratory Technician Program offers a two year Associate of Applied Science Degree. The faculty and staff wish you success in the pursuit of you educational goals. We are glad to have you and will treat you with courtesy and respect. The student is our only product and consequently, our most important product. Therefore, we are here to assist you in gaining an education both within the classroom and in clinical activities scheduled for application of knowledge gained from the classroom.

The Turtle Mountain Community College is accredited by the Higher Learning Commission of the North Central Association of Colleges and Schools (NCA) 230 South LaSalle Street, Suite 7-500 Chicago, Il 60604. The Medical Laboratory Technician Program at TMCC is accredited by National Accrediting Agency for Clinical laboratory Sciences (<http://www.naacls.org>) 5600 N. River Rd., Suite 720, Rosemont, Illinois 60018: (733) 714-8880. NAACLS accreditation assures students that they will be provided with a quality education in Laboratory Science. Upon successful completion of the Medical Laboratory Technician Program the graduate is eligible to take a national board of certification exam. Graduation from the program is not contingent upon passing an external certification exam.

The purpose of this handbook is to detail policies and procedures specific to the Medical Laboratory Technician Program. It is constructed to be used as a supplement to the Turtle Mountain Community College catalog and student handbook. The policies and procedures set forth in this handbook are designed to support the success of the student.

A copy of the Turtle Mountain Community College catalog and student handbook is available at the Campus's Student Services offices or may be downloaded from the TMCC web site at <http://www.tm.edu>

For more information concerning the Turtle Mountain Community College Medical Laboratory Technician Program you may contact the following Individuals:

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2. Mrs. Marilyn Delorme Medical Laboratory Instructor (701) 477- 7862 Ext. 2904
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Medical Laboratory Science Clinical Affiliates

Program Director: Tyler Parisien, Ed.D., MLS (ASCP)^{CM}

<p>Quentin N. Burdick Memorial Health Care Facility (QNBMHCF) 1300 Hospital Loop Belcourt, ND 58316 (701)477-6111 Kim Trottier, Education Coordinator/Lab Manager</p>	<p>Presentation Medical Center 213 2nd Ave NE Rolla, ND 58367 (701)477-3161 Romel Canapi, Education Coordinator/Lab Manager</p>
<p>Heart of America Medical Center (HAMC) 800 S Main Ave Rugby, ND 58368 (701)776-5261 Debbie Knain, Lab Manager Kimberly Skar, Education Coordinator</p>	<p>St. Andrews Health Center (SAHC) 316 Ohmer St. N Bottineau, ND 58318 (701)228-9300 Sheila Monson, Education Coordinator/Lab Manager</p>
<p>Trinity Health 1 W Burdick Expy Minot, ND 58701 (701)857-5000 Laura Lara, Lab Manager/Site Coordinator</p>	<p>CHI St. Alexius Health 1031 7th Street Northeast Devils Lake, ND 58301 (701)662-2131 Bill DeWall, Education Coordinator/Lab Manager</p>
<p>Northland Community Health Center 401 2nd Ave Rolette, ND 58366 (701)246-3391 Chelsea Unger, Education Coordinator/Lab Manager</p>	<p>Trenton Community Health 331 4th Ave E Trenton, ND 58853 (701)774-0461</p>

MEDICAL LABORATORY TECHNICIAN PROGRAM INFORMATION

DESCRIPTION OF THE PROFESSION

The health of all Americans depends upon the educated minds and trained hands of the Medical Laboratory Professional. The practice of modern medicine at the exacting standards currently required would be impossible without the scientific testing performed daily in the medical laboratory. Maintenance of these standards and progress toward improvement in the quality of laboratory services depends on the dedicated efforts of professional practitioners of medical laboratory science.

“The medical laboratory technician is qualified by academic and applied science education to provide service in clinical laboratory science and related areas in rapidly changing and dynamic healthcare delivery systems. Medical laboratory technicians perform, evaluate, correlate and assure accuracy and validity of laboratory information; direct and supervise clinical laboratory resources and operations; and collaborate in the diagnosis and treatment of patients. The medical laboratory technician has diverse and multi-level functions in the areas of collecting, processing, and analyzing biological specimens and other substances, principles and methodologies, performance of assays, problem solving, troubleshooting techniques, significance of clinical procedures and results, principles and practices of quality assessment, for all major areas practiced in the contemporary clinical laboratory. Medical laboratory technicians practice independently and collaboratively, being responsible for their own actions, as defined by the profession. They have the requisite knowledge and skills to educate laboratory professionals, other health care professionals, and others in laboratory practice as well as the public. The ability to relate to people, a capacity for calm and reasoned judgment and a demonstration of commitment to the patient are essential qualities. Communications skills extend to consultative interactions with members of the healthcare team, external relations, customer service and patient education. Laboratory professionals demonstrate ethical and moral attitudes and principles that are necessary for gaining and maintaining the confidence of patients, professional associates, and the community.”

Reference: NAACLS Standards 2020

DESCRIPTION OF THE CAREER ENTRY

“At entry level, the medical laboratory technician will possess the entry level competencies necessary to perform routine clinical laboratory tests in areas such as Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunochemistry/Transfusion medicine, Microbiology, Urine and Body Fluid Analysis, and Laboratory Operations. The level of analysis ranges from waived and point of care testing to complex testing encompassing all major areas of the clinical laboratory. The medical laboratory technician will have diverse functions in areas of pre-analytical, analytical, post-analytical processes. The medical laboratory technician will have responsibilities for information processing, training, and quality control monitoring wherever clinical laboratory testing is performed.”

Reference: NAACLS Standards 2020

CAREER ENTRY COMPETENCIES

At entry level, the Medical Laboratory Technicians are proficient in:

- Collection, handling, preparation, and storage of biological specimens for laboratory analysis;
- Performance of technical analyses on body fluids, cells, products, and organisms;
- Recognition of factors that affect procedures and results and take appropriate action within predetermined limits;
- Ability to operate basic laboratory instrumentation;
- Performance of quality control measures on instrumentation and technical analyses;
- Recognition of and adherence to clinical laboratory safety policies;
- Ability to troubleshoot instrumentation and technical analyses;
- Ability to perform preventative and corrective maintenance on basic laboratory equipment and instrumentation;
- Ability to recognize when to refer instrumentation problems to the appropriate sources;
- Demonstration of professional conduct with patients and health care workers both within and outside the laboratory;
- Demonstration of effective interpersonal communication skills;
- Demonstration of knowledge of the relationship of laboratory findings with common diseases processes;
- Demonstration of knowledge of reporting patient results using a laboratory computer information system;
- Recognition of the need for continuing education in professional practice and action on that recognition.

PROGRAM GOALS

The Medical Laboratory Technician Program goal reflects the basic philosophy and mission of Turtle Mountain Community College. The program is committed to:

1. Provide a professional learning environment for students.
2. Provide a curriculum that will give students the skills necessary to demonstrate entry level proficiency in all areas of Laboratory Science.
3. Provide the number of credits to fulfill transferability to a university Medical Laboratory Science program.
4. Provide the student with the opportunity for personal as well as professional growth.
5. Prepare students to pass national certification examinations.
6. Provide examples following the Seven Teachings enabling students to learn respect for others, themselves and the medical community as described in the Code of Ethics.

AFFECTIVE BEHAVIORS

Students must exhibit the following professional behavior throughout the Medical Laboratory Technician program:

1. Attend class sessions on time; be ready to begin activities and submit assignments on time.
2. Subscribe to the policy of honesty and confidentiality at all times.
3. Communicate with courtesy and consideration for fellow students, instructors and staff.
4. Maintain a professional appearance, good personal hygiene, and grooming.
5. Accept corrective criticism graciously; and seek to correct mistakes.

CODE OF ETHICS

Students enrolled in the Medical Laboratory Technician program will apply the seven teachings of the Anishinabe as their “code of ethics”

THE SEVEN TEACHINGS

WISDOM

- The Medical Technician Student through an educational program will gain the “Wisdom” needed to be a medical professional and become an important part of the Medical Laboratory Team.

LOVE

- The Medical Technician Student will be taught a “Love” for their profession and through that love will perform work that is ethical, of high quality and above all with compassion.

RESPECT

- The Medical Technician Student will be taught the importance of respecting one's leaders and co-workers of whatever medical team they are a part of; they will learn to “Respect” and protect the dignity and requests of the sick.

BRAVERY

- The Medical Technician Student will be taught the tools needed to have the Bravery to take that initial step to encounter their first patient with confidence.

HONESTY

- The Medical Technician Student will be taught the importance of Honesty in following performance procedures correctly and how, by not doing so, could affect a patient's results and ultimately their diagnosis and treatment.

HUMILITY

- The Medical Technician Student will be taught the Humility of acknowledging making a mistake and not to try and cover it but correct and learn from it.

TRUTH

- The Medical Technician Student will learn the Truth about their patients' conditions and will be taught to hold those truths in strict confidence as if they were their own.

PROGRAM ESSENTIAL FUNCTIONS

The Medical Laboratory Technician Program *Essential Functions* include certain cognitive, physical and behavior abilities, which are necessary to perform the duties of a professional Medical Laboratory Technician. Each of these essentials is reflected in course objectives and provides an objective measure for students and advisors to make informed decisions regarding whether a student is qualified to meet the requirements of the program. If a student believes that they cannot meet one or more of the essentials without accommodations or modifications, the Medical Technician Program Director will determine on an individual basis, along with the Student Services Representative, whether or not the necessary accommodation or modification can be made reasonable. Students can also be referred to the Vocational Rehab Program for additional assistance. In order to meet the course requirements, students must possess the following basic abilities:

- a. Cognitive ability -sufficient to learn and use the body of knowledge necessary to meet the program curriculum requirements and attain career entry status in the profession.
- b. Physical ability- sufficient mobility and motor coordination to safely collect and process patient specimens, including Phlebotomy, and perform laboratory testing procedures using a microscope, computer, and various types of diagnostic equipment.
- c. Visual acuity- sufficient to read and interpret test procedures, physician orders and test results, monitor instrument function, focus a microscope, and differentiate colors.
- d. Hearing ability- sufficient to respond to messages and requests from patients, physicians, and staff and to respond to equipment signals.
- e. Communication skills- sufficient to allow for communication with instructors, staff, patients, and physicians.
- f. Emotional stability- sufficient to interact professionally with instructors, patients and staff, respect patient confidentiality, use of reasonable judgment and accept responsibility for their actions.

I have read the Medical Laboratory Technician Essential Functions as described above. I understand what is expected of me and believe I have the necessary abilities to meet the Program requirements.

Reference Bristol CC Handbook 2021

Student Signature

Date

Students Printed Name

PROGRAM DESCRIPTION

Students completing the Medical Laboratory Technician curriculum will be prepared to work in a modern clinical laboratory performing a wide range of laboratory procedures used in the detection, diagnosis and treatment of disease and health maintenance. Students develop academic and technical competence in the major areas of clinical laboratory practice: hematology, clinical chemistry, clinical microbiology, immunology, and immunohematology.

Students in the Medical Laboratory Technician program are required to take general education courses in English as well as prerequisite courses in Science, Mathematics and Healthcare. The prerequisite coursework will provide the foundation upon which the Medical Laboratory Science courses will build. Coursework follows a specific sequence providing for a smooth transition that allows the student to apply basic knowledge gained in biology, chemistry, and mathematics to Medical Laboratory Technician courses. In addition, students will strengthen interpersonal and communication skills and the ability to project a professional demeanor.

Reference Bristol CC Handbook 2021

TMCC ADMISSION POLICIES

The standard admission policies are printed in the college catalog. (Pages 12-15)

Admission and General Information

Student Responsibility for Satisfying Requirements

Each student has complete responsibility for complying with the instructions and regulations set forth in the catalog, for selecting courses that will satisfy his/her educational objectives, and for satisfying course prerequisites. Student Services Staff and Advisors are always available and willing to assist students. The college does not assume responsibility for student misinterpretation of policies and procedures presented in the catalog. Any question concerning the content of TMCC's Catalog should be referred to the Dean of Academic Programs and/or Dean of Student Services.

Admissions

All correspondence regarding admission to the college should be addressed to the Admission Officer. Each student is urged to make an application for fall/spring semester admission as early as possible. If a student is denied admission to the college, he/she may appeal to the Admission and Financial Aid Committee for a case review. Any questions concerning appeal procedures should be addressed to the Admissions Officer.

Selective Admission Policy

Turtle Mountain Community College has an open-admission policy for most of its programs. However, the college does reserve the right to institute a selective admission policy in programs of study where limitations are necessary; such as in the Allied Health Programs where student numbers may be limited by Certifying Agencies, currently 12 students.

General Admission Requirements-New Students/Students Seeking Readmission

An applicant who wishes to be considered for admission must have the following documents on file:

- A complete application for admission.
- An official transcript from an accredited or approved high school with the date of graduation, or the official transcript of the General Education Development (GED)

- examination.
- Transfer students must provide an official transcript of all previous college work
- A Certificate of Degree of Indian Blood from a federally recognized tribe, if applicable

The student will be required to complete the above admissions requirements before registering. If any of the requirements are not satisfied, a letter will be sent to the student. It is the responsibility of the student to ensure all documents are received before registering for classes. Students who have completed all admission requirements will receive a letter of acceptance. The letter will contain information on orientation, registration and first day of classes.

Financial Aid

The Turtle Mountain Community College Financial Aid Office, utilizing one or more of the student aid programs described in this section, will make every effort to provide adequate financial assistance to the student that demonstrates legitimate financial need. Priority consideration deadlines are as early as March 15 for some programs. Applications received after May 1, will be considered on a funds-available basis. The Financial Aid Director will make an effort to satisfy the student's unmet need to the maximum, if possible, from available sources. The student is free to accept or decline any aid that is offered.

Financial aid is awarded for one academic year. A student must complete a new FAFSA application each year. A student who wishes to apply for financial aid should contact the Financial Aid office for information and application forms.

Policy and Procedure for Registration/and Academic Record Information

Registration dates for each term are shown in the academic calendar at the front of this catalog, posted on the college website, listed in the student handbook and posted at various locations around campus.

Registration is conducted each semester. See the academic calendar at the front of this catalog for dates. Faculty is available to advise students during the fall/spring registrations. Starting one to two weeks before registration, prospective students are informed by mail and media about the date, time, and place of registration.

Orientation is an organized informational seminar and an important part of the registration process. Orientation is a requirement for all students. At the session, staff and peer mentors present an overview of information for all freshmen and transfer students who intend to enroll for the semester. See the academic calendar at the front of this catalog for the date.

Pre-registration is conducted for one week in the fall semester for currently enrolled students seeking enrollment for the next term. See academic calendar for dates.

All new students are required to take placement tests in the following areas: English, math and science. Students who lack basic skills based upon these results of these tests will be required to register in appropriate courses. Students will have a one-time opportunity to challenge the test results. See Academic calendar for dates.

Registration forms are available in Student Services. All students will be required to pay a registration fee of \$25.00, regardless of how many credits the student registers for in that semester. This fee will be assessed each semester.

MLT PROGRAM STUDENT SELECTION

Students applying for the MLT Program must follow the General Admission Policies outlined in the TMCC Catalog. Upon acceptance to the Institution, a student may apply for the Medical Lab Technician Program, however; students are not accepted into the program until after the first academic year of prerequisites. Applications can be obtained from the MLT Program Director. Note: Applications that are not received or postmarked by the deadline of April 15th of each year will not be considered in the initial admissions process into the MLT program.

Applicants for the program must have:

- A letter of acceptance to the Institution from the TMCC Admissions Officer
- Complete TMCC Clinical/Medical Lab Technician Program Application
- A minimum of one year of high school biology and chemistry or their applicable equivalents within the last 10 years with a grade of “C” or better.
- Applicants must demonstrate readiness for English 110 and Math 103 as determined by the College’s placement tests or by documentation of successful completion of identified developmental course work.
- TB tests and immunizations must be on file prior to beginning any Clinical Laboratory Technician classes. Health problems which would interfere with the applicant’s ability to meet program objectives will be addressed on an individual basis.
- Applicants must obtain a Criminal Record Check and a Child Abuse Clearance.

Once a potential student meets the entrance requirements, the MLT Program Director will schedule an interview. During the interview process the student will be advised that participation in MLT Program requires:

- Interest in Science and Math Classes.
- Good communication and organizational skills
- Students must be able to pass a drug screen prior to acceptance.
- Desire to work with people
- Maintaining a minimum 2.00 GPA in all MLT Program Curriculum Courses
- Obtaining a background checks as well as drug screens prior to entering a Clinical Rotation
- Compliance with HIPAA Regulations
- Completion of CLS 103 Phlebotomy with a grade of “C” or before entering into a Clinical Rotation
- Completion of all General Education classes before entering into a Clinical Rotation
- Review of essential functions for MLT Program
- A selection committee at TMCC will select 12 students, based upon space, into the MLT program. Student selection is determined by favorable review of the application process, along with the applicant’s ability to meet the specific requirements of the program. Applicants will be notified by mail by August 1 of each year regarding the status of their application. Applications of those who are not admitted *will not be carried over* to the following year. Applicants must reapply to the MLT Program by the next application deadline. Applicants must comply with the admission requirements for the current program year. It is the responsibility of the applicant to be aware of any change in criteria. Current admissions information can be obtained from the MLT Program Director.
- Please be informed that a Criminal Background check is required prior to entering any MLT internship. In the event the student background check reveals any disqualifying factors that student will not be permitted to continue with the internship portion of the program (note: successful completion of all MLT internships is a graduation requirement). Information on how to acquire / perform the background check will be

provided to all students accepted to the MLT program. Students will be required to submit a signed Student Verification and HIPAA Disclosure Form.

- Students are expected to pass a final competency/assessment exam with at least a 65% prior to being placed in a clinical site. Students who fail to pass this exam will be given an additional two opportunities to pass before being placed in a clinical site. Any student who does not pass the competency exam after three attempts will be expected to repeat selected courses.
- A grade of “C” or better in all Medical Laboratory Science courses.
- A passing grade in all required courses.

TURTLE MOUNTAIN COMMUNITY COLLEGE

MLT PROGRAM CURRICULUM

Name _____

Major _____

Address _____

Telephone _____

Student ID # _____

MLT Program Required Courses

Fall Semester

Credits	Course #	Course Title	Grade	Prerequisite	Comments
4	BIOL 115	Human Structure and Function (or BIOL 220 Anatomy and Physiology 4)			
4	CLS 201*	Immunology			
3	BOTE 171	Medical Terminology			
4	CLS 103*	Phlebotomy			
3	ENGL 110 **	Composition I		<i>Placement Test</i>	
Total: 18					

Spring Semester

Credits	Course #	Course Title	Grade	Prerequisite	Comments
4	CHEM 116*	Intro to Organic and Biochemistry		<i>CHEM 115 or permission from instructor</i>	
3	CLS 113*	Urinalysis and Body Fluids			
4	MATH 103 **	College Algebra		<i>Placement Test</i>	
3	CLS 200*	Intro to Medical Biology/Molecular Diagnostics			
Total: 14					

Summer

Credits	Course #	Course Title	Grade	Prerequisite	Comments
4	CLS 235	Clinical Chemistry			
3	CLS 246	Parasitology, Virology, Mycology		<i>CLS 200</i>	
Total: 7					

Fall

Credits	Course #	Course Title	Grade	Prerequisite	Comments
4	CLS 225	Hematology			
4	CLS 240	Immunohematology (Hybrid)		<i>CLS 201</i>	
4	CLS 245	Clinical Microbiology		<i>CLS 200</i>	
4	CLS 161	Integrated Lab Simulation			
2	HPER 210	First Aid/CPR			
Total: 18					

Spring

Credits	Course #	Course Title	Grade	Prerequisite	Comments
9	CLS 254	Clinical Internship		<i>All core coursework</i>	
2	CLS 106	Clinical Seminar			
1	CLS 177	Job Readiness			
Total: 12					

Total required credits: 69
refer to catalog for policies.

Prerequisites have been added based on TMCC Policy-please

*A minimum grade of C is required to progress to sophomore level.

** Courses are listed under the “General Education” courses in the college catalog.

COURSE DESCRIPTIONS

List of course Descriptions

CLS 103 Phlebotomy
3 Credits Prerequisite:

This course provides instruction in the skills needed for the proper collection and handling of blood and other specimens used for diagnostic purposes. Emphasis is placed on ethics, legalities, safety, universal precautions, national patient safety goals, health care delivery systems, patient relations and communication. Additionally students will understand the pre-analytical variables that affect laboratory specimens and how to work successfully as part of the extended laboratory team. Upon completion, students will have gained educational instruction to be able to demonstrate competency in all areas of theoretical comprehension and techniques of phlebotomy.

CLS 106 Clinical Seminar
2 Credits Prerequisite: CLS 103 Co-Requisite CLS 255

This course provides the student the opportunity to review with faculty specific learning objectives/competencies, clinical rotation evaluations and provides the student with tools to use in preparation and review for the National and State Certification exams. While enrolled in this class students will be required to participate in Service Learning Activities in which they will use their skills learned in their field of study to benefit the community. Students will take competency exams at the completion of rotation at each section in the laboratory. Students will make daily journal entries and participate in bi-weekly journal review.

CLS 113 Urinalysis and Body Fluids
3 Credits Prerequisite:

Theory, techniques and practice of urinalysis with emphasis on identification of elements in sediment. Analysis of various body fluids, examination of slides, chemistry of spinal fluids, semen, plural and synovial fluids.

CLS 161 Integrated Lab Simulation
4 Credits Prerequisite:

This practicum/course will be presented in the allied health laboratory. This course provides a general overview of the key areas in the clinical laboratory, including: immunology, urinalysis and body fluids, phlebotomy, clinical chemistry, immunohematology, microbiology and hematology. The instrumentation that will be used by the students with supervision include the Abbott Ruby Hematology analyzer, Ortho Blood Banking Gel System, Piccolo chemistry analyzer, Qualigen, Triage meter, Clinitek Status urinalysis analyzer, CoaguChek XS coagulation analyzer and manual procedures for microbiology.

CLS 177 Job Readiness
1 Credit Prerequisite:

Job readiness is designed to prepare students to get, keep and excel at a new job. Basic employability skills include effective communication, problem solving, resume building, and interviewing. The course is also designed to help participants develop good work habits that facilitate their ongoing success. Instruction typically includes lectures, discussions, and role playing.

CLS 200 Intro to Medical Biology/Molecular Diagnostics

3 Credits Prerequisite:

This course introduces the student to the basic principles of Biology, Microbiology and Molecular Diagnostics and the associated terminology. This course is offered as part of the Medical Laboratory Technician curriculum and is appropriate for students with some background in biology and chemistry who need a refresher course for the basic principles and terminology. This course will highlight the basics of modern cellular biology with the organization of eukaryotic and prokaryotic cells. A general understanding of both cell types is useful before taking a medical microbiology course. Part II of this course will include an introduction to the basic principles of microbiology, examining the microbes that inhabit our planet and their effects on human health and disease. Lastly, this course will provide a comprehensive introduction to the basic principles of molecular diagnostics, highlighting clinical applications and specimen handling.

CLS 201 Immunology

4 Credits Prerequisite:

The foundations of diagnostic serology, immunohematology, histocompatibility and hematology as well as new technology such as monoclonal antibodies and molecular biology are covered in order for students to become better prepared for a career in laboratory medicine.

CLS 220 Parasitology, Virology, Mycology

3 Credits Prerequisite: CLS 201

The study is presented with the theories, techniques, and methods used in basic parasitology, virology, and mycology. Emphasis is placed on special bacteria, identification, life cycles, culture growth, and pathological states of infection and infestation. Upon completion, students should be able to identify certain parasites, demonstrate various staining and culture procedures, and discuss the correlation of certain microorganisms to pathological conditions.

CLS 225 Hematology

4 Credits Prerequisite: CLS 103

Identification of normal and abnormal blood cells in various hematological disorders. Theory and application of hematology procedures. Theory and mechanisms of hemostasis.

CLS 235 Clinical Chemistry

4 Credits Prerequisite:

Principles of instrumentation and the theory and application of the biochemical tests performed in the clinical laboratory. The student will receive instruction in the basic techniques required for performing routine manual determinations.

CLS 240 Immunochemistry (Hybrid)

4 Credits Prerequisite:

Lecture and laboratory. Fundamental principles of immunology are presented and applied to serology and blood banking. Donor selection, blood collection and processing, blood components and compatibility testing. Preparation and administration of blood and genetics of blood inheritance.

CLS 245 Clinical Microbiology

4 Credits Prerequisite:

The morphology, culture characteristics and identification of bacteria pathogenic to man and their role in infectious disease are discussed, as well as antibiotics susceptibility testing and rapid identification systems.

CLS 255 Clinical Internship

9 credits Prerequisite: Must have completed all General Education and Program Core classes with a GPA of 2.0 or better.

Supervised experience in the hematology/coagulation, chemistry, microbiology, urinalysis, phlebotomy, parasitology and blood banking departments of the affiliated clinical laboratory. The student will have an opportunity to intern in an affiliated laboratory dependent upon their staffing situation. Students will be evaluated by the clinical liaison at each site. Students are required to complete 430-450 hours of internship.

TMCC HEALTH AND SAFETY

The Turtle Mountain Community College does not have a Medical Services Office for students. We do have First Aid Stations that contain basic first aid materials, some medications. They are placed in several locations throughout the college. Students essentially are responsible for their own health needs. Should a student become ill; staff are trained to call 911 and all are trained in basic life support.

In their admission packets; Medical Laboratory Technician students are required to provide proof of rubella titer, tetanus immunizations, negative Tuberculin test or negative chest x- ray. Proof of immunity against measles, mumps and rubella if born after Jan 1, 1957

It is required that the Medical Laboratory Technician students complete 3 doses of the Hepatitis B vaccine before entering rotation or sign a waiver of refusal.

The MLT students receive training in General Laboratory safety, Chemical Safety, Blood-borne pathogens, Electrical, Fire, Radiation, Ergonomics, and needle stick injury training during their CLS 103 Introduction to MLT class the first semester. Students are required to read the policies and procedures for all Laboratory experiments and exercises before actual instruction begins. Listed below are MLT

Safety policies that are addressed and reviewed in all MLT courses.

These policies include:

- Contagious Diseases
- Student Guidelines for Bloodborne Pathogen Exposure
- Exposure Classification for Bloodborne Pathogens
- Exposure Classification for Hazardous Chemicals
- Health Science Exposure Chart
- Latex Allergy Policy

The College has a Critical Alert system, known as ALERT NOW that is available to all students, faculty and staff. Each year a student, faculty or staff member can go on-line and list their phone numbers (home or cell). The system is designed so that if there is a critical emergency at any one of the campuses [such as medical emergencies severe enough to interrupt classes, weather emergencies or other emergency situations that would interrupt or cancel classes], anyone registered on the system will receive a phone call notifying them about the emergency and giving further instructions if classes are cancelled or a campus is closed.

While on rotation students are considered to be eligible for the same emergency health care as employees of the Affiliate site. All the clinical rotation Affiliates comply with the Emtela laws.

DEPARTMENT SAFETY POLICY MANUAL

SECTION I:

GENERAL SAFETY REQUIREMENTS

Safety in the laboratory requires every student's participation and cooperation. Noncompliance with safety precautions not only endangers the individual, but also compromises the health and safety of fellow students.

- I. Student Responsibilities - Each student's responsibilities include:
 - a. Complying with all safety policies and procedures;
 - b. Maintaining awareness of the risks associated with assigned duties;
 - c. Taking all necessary and appropriate safety precautions relevant to performance of duties;
 - d. Becoming familiar with emergency procedures prior to accidental spills, overt personal exposures, fire;
 - e. Reporting unsafe conditions or practices to the Instructor;
 - f. Reporting all incidents resulting in injury or exposure to hazardous agents to the Instructor.

The following rules and procedures apply to the Turtle Mountain Medical Training Laboratory

- II. Personal
 - a. Hand washing- is the most important single precaution to prevent the spread of infections. Hands should be washed with soap and water, if visibility soiled, or waterless hand cleaner after: completing a task removing gloves immediately upon accidental contact with contaminated materials. Protective hand cream may be applied in the laboratory in the designated hand washing area.
- III. Dress Code
 - a. The use of a long sleeved laboratory coat (buttoned closed) or a back closed gown is required when working with patient specimens.
 - b. Clothing worn by laboratory students/Instructors should be clean, neat and in good repair.
 - c. Clothing worn by laboratory students/instructors should provide protection to the skin in the event of a chemical splash or spill. OSHA laboratory standards (29CFR1910.1450 App. A) state that "Personnel (Instructors/students) should not wear loose (e.g. saris, dangling neckties, and over large or ragged laboratory coats), skimpy (e.g. shorts, strapless, cropped or halter tops) or torn clothing... Short trousers or miniskirts are inappropriate laboratory attire because laboratory coats open in the front when a person sits thereby exposing the legs above the knees to potential spills.
 - d. Personal Protective Equipment (PPE) such as fluid resistant gowns, gloves, goggles, face masks, face shields should be available and are required when there is significant probability that potentially hazardous substances may be splashed on the worker.
 - e. Shoes should be fluid, impermeable material, leather or synthetic, and should cover the entire foot. Shoes with open toes are not unacceptable. Because cloth shoes will absorb chemicals or infectious fluids, they are not recommended. No ball caps.
- IV. Specific precautions when working in the laboratory:

- a. Food and beverages must not be stored in refrigerators, freezers, or other areas where biological materials are present. The laboratory area will designate those places where food and beverages may be stored, and identify them with appropriate signs
- b. Eating, drinking, or chewing gum are not permitted in laboratories where biological materials are handled and work is performed. The laboratory shall designate areas where eating, and drinking are permitted.
- c. Application of cosmetics and handling of contact lens will follow the guidelines for eating and drinking.
- d. Long hair must be tied back when working in a clinical laboratory and while on patient floors.
- e. Always use protective equipment that is provided for working with hazardous materials. Be familiar with the location and operation of eye washers, the location of fire extinguishers and other safety equipment.
- f. Mouth pipetting is prohibited.
- g. Laboratory personnel will assure that only visitors or maintenance personnel who have been advised of the potential biohazards and have been warned to avoid touching any working surfaces will be allowed through the laboratory.
- h. Smoking. The Turtle Mountain Allied Health Building is smoke-free. There are no designated smoking areas within the building.
- i. Students are offered appropriate immunizations or test for agents handled in laboratory (ex. TB skin test annually, Hepatitis B vaccine)
- j. NO CELL PHONES!!

V. Disposal of biological materials and expendable supplies

- a. Unless there is evidence of contamination with blood, urine may be disposed of through the sewage system. Use caution to prevent splatter. The empty container must be disposed of in red bag lined trash containers or may be autoclaved.
- b. Those specimens contaminated with blood should be disposed of in red biohazard bags or placed in buckets lined with biohazard bags to be incinerated.
- c. Other body fluid, solid, and semi-solid waste including laboratory supplies (e.g. microbiological cultures) and urine should be placed in containers or buckets lined with biohazard bags, and sent to your designated area to be incinerated prior to disposal. The fill level must be below the rim of the container.
- d. All specimens received in the designated area must be incinerated prior to disposal.
- e. Specimen transport bags bearing the biohazard sign and gloves should be discarded in red bag trash.
- f. Trash and paper in the laboratory is also to be placed in biohazard bags.
- g. Only Red biohazard and autoclave bags are to be used in the laboratory areas.

VI. Safe handling of Needles

Most needle sticks can be prevented by "safety awareness" on the part of the user. The Needle sticks can be prevented if the approved containers are used properly and with caution. Recommendations for safe handling of needles and other sharps

- a. Needles containing safety devices, when available, are always to be applied after use (ex. butterfly, protective needles and syringes).
- b. Needles and other sharps are never to be discarded directly into the trash.
- c. Needles and other sharps must not be unattended (i.e. on furniture, trays, equipment or in beds and linen).
- d. Needles are not to be clipped or bent. Destructoclips and similar devices are not to be used.
- e. Needles are never to be recapped by hand.

- f. Employees must never reach into any container used for disposal of contaminated sharps.

VII. Sharps Disposal

- a. Items considered sharps are: needles, syringes, slides, glass pipettes, glass capillary tubes, scalpels and knives and must be discarded in certified sharps containers.

SECTION II:

STANDARD PRECAUTIONS

Standard Precautions expands the coverage of Universal Precautions by recognizing that any body fluid may contain contagious microorganisms

I. Nature of the risks

- a. HEPATITIS: Most cases of laboratory associated hepatitis are caused by one of the following agents: Viral hepatitis, Hepatitis B virus (HBV) and Hepatitis C which accounts for most of the transfusion-associated Hepatitis cases seen in the USA. Laboratory acquired Hepatitis is now recognized as a major occupational hazard to laboratory workers handling biological materials.
- b. AIDS: The etiology of Acquired Immunodeficiency Syndrome (AIDS) is a retrovirus called Human Immunodeficiency Virus (HIV). Transmission occurs from infected persons through direct intimate contact involving mucosal surfaces, such as sexual contact or through parenteral spread such as shared needles and syringes. Airborne transmission and spread through casual contact has not been documented.

II. General safety requirements

All precautions listed under Section I of this manual will apply to standard precautions.

III. Standard Precautions Principle

Since medical history and examination cannot reliably identify all patients with blood-borne pathogens, all body fluids are treated as if known to be infectious for HIV, HBV, and other blood borne pathogens. Standard Precautions are designed to reduce the risk of transmission of microorganisms from both recognized and unrecognized sources of infection in the hospital. Standard precautions apply to blood and body fluids, secretions, excretions and all tissues. Standard precautions do not apply to sweat.

IV. Exposure categories

- a. Category I: Tasks that involve exposure to blood, body fluids, or tissues. All procedures or other job-related tasks that involve an inherent potential for mucous membrane or skin contact with blood, body fluids, or tissues, or a potential for spills or splashes of them, are Category I tasks. Use of appropriate protective measures should be required for every employee engaged in Category I tasks.
- b. Category II: Tasks that involve no exposure to blood, body fluids, or tissues, but employment may require performing unplanned Category I tasks. The normal work routine involves no exposure to blood, body fluids, or tissues, but exposure or potential exposure may be required as a condition of employment.

V. Standard precautions barrier protection.

Standard precautions include general safety precautions plus:

- a. Gloves will be worn when
 - i. Handling blood, tissues, body fluids or items contaminated with blood or body fluids including specimen containers, laboratory instruments, counter tops, etc.
 - ii. Performing venipuncture, changing gloves and washing hands between each patient.
 - iii. Student's hands are abraded or active dermatitis is present.
- b. Gloves will be replaced as soon as possible when contaminated, before touching non-contaminated items or surfaces.
- c. Always wash hands with soap and water, for at least 15 seconds, following the removal of gloves or use an alcohol based hand rub solution.
- d. To protect the mucus membranes, masks and eye protection, face shields splash guards or safety cabinets must be used if splashing or spraying of blood or body fluid is anticipated.
- e. All lab coats, gloves, and other personal protective equipment must be removed prior to leaving the work area.
- f. Soiled gloves, masks and other disposable personal protective equipment will be discarded into red bag-lined receptacles after use.

LABORATORY SAFETY DOCUMENTATION FORM

Student _____

Date _____

I have received training in the following areas of Laboratory Safety as lecture material, videos and handouts in Phlebotomy CLS 103

1. Standard Precautions

- a. Airborne precautions
- b. Droplet precautions
- c. Contact precautions

2. Blood Borne Pathogens

3. OSHA Laws and Regulations

4. Biohazard safety

- a. I can recognize the biohazard symbol

5. Electrical Safety

- a. I know where the closest electrical box is located

6. Fire Safety

- a. I know the location of the closest fire alarm
- b. I know the location of the closest fire extinguisher
- c. I know the meaning of RACE
- d. I know the meaning of PASS
- e. I can name the types of fire extinguishers and their purpose

7. Chemical Safety

8. OSHA Hazard Communication Standard

9. Department of Transportation Labeling System

Signature _____

Medical Laboratory Technician Program PROGRAM PROTOCOL & CLINICAL PLACEMENT POLICIES

The Medical Laboratory Technician students are required to take the Course CLS 254 Clinical Internship. This class consists of sixteen weeks of training in a clinical laboratory that is an Affiliate of Turtle Mountain Community College.

During this training period the students put into practice the policies, procedures and techniques they have learned from the Medical Laboratory Technician Program Curriculum and perform hands-on procedures in the TMCC training Laboratory. At this time the students interact with laboratory personnel, medical providers, nurses, and most importantly the patient. Medical laboratory professionals do not teach basic procedures or theory. The student must demonstrate this ability prior to participating in the Clinical Internship, through satisfactory completion of all classroom competencies and laboratory check-offs. If a student has not satisfactorily completed course work and demonstrated the ability to perform required procedures, he or she will not be allowed to go on to a clinical assignment. The clinical instructor(s) and Program Director must be sure that all students will be safe practitioners at the level expected for students in the final phase of the educational program.

While at the Clinical Rotation Affiliate site the students are directed to comply with the policies and procedures of the Affiliate, including those governing the use and disclosure of individually identifiable health information under federal law, specifically 45CFR parts 160 and 164. Solely for the purpose of defining the student's role in relation to the use and disclosure of the Affiliates protected health information, the trainees are defined as members of the Affiliate's workforce, as that term is defined by the Affiliate when engaged in activities pursuant to the agreement with the Affiliate. Nevertheless, the students are not and shall not be considered to be employees of the Affiliate.

Students are required to complete competency evaluation while in the Clinical Rotation. The professional performance standards are monitored throughout the sixteen week rotation noncompliance with these standards can result in removal from the program. Regular attendance and consistent study habits are essential to success in college and is expected of all TMCC students. It is the student's responsibility to take a serious and active role in their education during clinical rotations. Students are expected to actively participate in clinical practicum on assigned days at assigned times. If the student is ill or has an emergency that prevents him or her from being at the clinical site, the student must notify both the clinical office AND the MLT Program Director. A student must have the required clinical hours to graduate from the program. Absences will mean making up these hours at the end of the semester at a time arranged with both the clinical site supervisor/instructor and Program Director/Director/Chair. The program reserves the right to remove students from clinical sites and

request withdrawal of any student(s) for excessive or unexcused absences from Clinical Rotation.

Clinical Rotation Affiliate sites for the Medical Laboratory Program are currently as follows:

1. Quentin N. Burdick Memorial Health Care Facility Belcourt, North Dakota.
2. Presentation Medical Center Rolla, North Dakota
3. Heart of America Medical Center Rugby, North Dakota
4. Trinity Health Minot, North Dakota
5. St. Andrew's Health Center Bottineau, North Dakota
6. Trenton Community Health Trenton, North Dakota
7. CHI St. Alexius Devils Lake, North Dakota
8. Northland Community Health Center Rolette, North Dakota

If a student cannot be placed in a Clinical site due to training slots being filled they will be given first priority in the next rotation cycle, or when a slot becomes available. Students will be selected based on academic achievement.

Student requests for a clinical rotation site are taken into consideration. Depending on the number of students a site can accept. Student requests for assignment to another Affiliate due to conditions other than academic performance will be reviewed by the Program Director.

Service Work Policy

Students shall not, at any time, take the responsibility of or replace qualified staff (service work). Students will not be excused from scheduled MLT assignments, laboratory exercises, clinical experiences, exams or practical in order to perform service work.

Students cannot be compelled to provide service work. Students may, after demonstrating proficiency, with qualified supervision, be permitted to perform procedures. This will be determined and arranged by the clinical affiliate.

It is strictly against College policy for a student to receive pay for hours spent in a clinical, learning experience.

Psychomotor Objectives

Part I: Clinical Rotation Affective Objectives

Part II: Clinical Performance Objectives: Phlebotomy

Part III: Clinical Performance Objectives: Urinalysis

Part IV: Clinical Performance Objectives: Hematology

Part V: Clinical Performance Objectives: Chemistry

Part VI: Clinical Performance Objectives: Microbiology

Part VII: Clinical Performance Objectives: Immunohematology (Blood Banking)

Part VIII: Clinical Performance Objectives: Immunology and Serology

Part I

Affective Objectives

Upon the completion of each clinical rotation assignment, the student should be able to:

- I. Show a concern for his/her own safety as well as those of other students and laboratory employees by adhering to established safety protocols.
- II. Demonstrate an appreciation for neatness by maintaining the work area in an orderly and clean manner, returning all materials to their appropriate area after use.
- III. Demonstrate dependability by maintaining a regular attendance pattern, arriving at the assigned time and remaining in the designated area until all assignments are complete.
- IV. Follow instruction on procedures and use of materials as outlined in laboratory procedure manual.
- V. Demonstrate an acceptance of responsibility for his/her own learning by consistently preparing for clinical sessions, voluntarily seeking information; asking pertinent questions and setting personal priorities to allow for academic success.
- VI. Show initiative through the performance of routine assigned tasks and seeking additional tasks as time permits.
- VII. Accept constructive criticism as a learning process and act upon suggestions for improvement.
- VIII. Exhibit a diplomatic, courteous and friendly attitude when dealing with patients, peers and laboratory personnel.
- IX. Use equipment and supplies in a careful, responsible manner.
- X. Show an appreciation for the patient care team by working cooperatively and constructively with laboratory personnel and offering to help others when appropriate.
- XI. Exhibit an acceptable level of self-confidence in his/her ability to perform laboratory tasks.
- XII. Use time wisely organizing and completing assignments in a timely fashion and following through when problems arise.
- XIII. Demonstrate integrity by striving to perform to the best of his/her ability, admitting mistakes and taking appropriate corrective action.

- XIV. Maintain a flexible and adaptable attitude, responding to unusual or stressful situations in an appropriate manner.
- XV. Respect the patient's right to confidentiality and only discuss laboratory results with authorized personnel in an appropriate manner.
- XVI. Maintain an appropriate professional appearance, adhering to the hospital dress code as required, and appearing neat and well groomed. (Hair tied back, no excessive cologne or perfume).

Part II
Clinical Performance Objectives
Phlebotomy

Upon completion of the rotation, the student will be able to:

- I. Patient and Laboratory Safety
 - a. Utilizes precautions, practices and procedures to assure patient safety
 - b. Understands institutional safety procedures and practices
 - c. Correctly utilizes safety equipment during phlebotomy
- II. Infection Prevention
 - a. Utilizes sterile technique related to the scope of practice
 - b. Complies with the OSHA bloodborne pathogen standards
 - c. Utilizes standard precautions, workplace practices and engineering controls as related to phlebotomy and related services
 - d. Follows isolation procedures and personal protective equipment requirements in accordance with the standard precautions
 - e. Follows handwashing procedures
- III. Specimens/Samples
 - a. Evaluate specimens/samples and determine the integrity and appropriateness for specific tests requested
 - b. Demonstrates an understanding of the additives used for blood collection
 - c. Define the modes of action and appropriate use of each additive used for blood collection
 - d. Demonstrates an understanding of the blood collection tube colors and the additives they contain
 - e. Utilizes appropriate equipment/supplies for dermal puncture and venipunctures on a variety of patient types
 - f. Understands the specimens/samples used for commonly ordered clinical tests
- IV. Equipment and Supplies
 - a. Selects appropriate equipment/supplies for blood draws
 - b. Wears the appropriate protective wear during blood collection, transport and handling
 - c. Uses equipment/supplies appropriately such that specimens/samples of quality and high integrity are obtained
 - d. Appropriately stores equipment and supplies

- e. Appropriately disposes of used or contaminated equipment and supplies

V. Specimen/Sample Collection

- a. Instruct the patient on specimen/sample collection
- b. Understand and practices the need for quality specimen/sample collection including adherence to diet, medication, and determination of patient readiness through interviews/communication
- c. Prepare and organize equipment and supplies prior to performing phlebotomy and related services in front of the patient
- d. Demonstrates the appropriate collection site for arterial puncture, dermal puncture, and venipuncture after considering factors that affect site selection (e.g. mastectomy, intravenous fluid lines)
- e. Collects blood via appropriate collection site and standard venipuncture techniques
- f. Collects blood via appropriate collection site using standard dermal puncture techniques on various patient types
- g. Evaluates specimen/sample integrity by proper patient preparation for tests ordered
- h. Demonstrates the appropriate use of special precautions when collecting blood specimens/samples
- i. Prepares peripheral blood smears that are appropriate for testing using standard procedure
- j. Labels specimens/sample with appropriate information in front of the patient
- k. Prepare specimens/sample for transport
- l. Demonstrates proper disposal of contaminated equipment, supplies, and discard specimens/samples

VI. Quality Assurance

- a. Evaluate specimens/samples for acceptability for tests requested
- b. Demonstrates understanding of volume of blood that can be taken from patient with regard to age/size
- c. Follows standard practices related to the number of times a patient can be punctured by the same phlebotomist

VII. Communication

- a. Demonstrates effective communication in phlebotomy and related services
- b. Demonstrates appropriate communication by assuming the role of listener, speaker, and ultimately, effective communicator as a phlebotomist and patient

care provider

- c. Demonstrates effective communication in providing patients with instructions for preparing for phlebotomy procedures (e.g. fasting specimens, glucose tolerance tests, urine collections and stool collections)
- d. Demonstrates proper communication skills when conversing with a patient/client as related to phlebotomy and phlebotomy services
- e. Demonstrates proper greeting of patients/clients, visitors, peers, and other health care professionals
- f. Demonstrates effective communication with diverse clients encountered including English Language Learners, pediatric and geriatric patients

VIII. Professionalism, Legal and Ethical Aspects

- a. Demonstrates professional appearance by proper grooming and wearing professional attire
- b. Applies laws that have an impact upon phlebotomy and related services (Especially HIPAA)

IX. Specimen Handling and Processing

- a. Demonstrates correct operating procedure for a given centrifuge
- b. Correctly centrifuge appropriate blood specimen tubes and separate components
- c. Correctly split samples to be sent to reference laboratories
- d. Demonstrate ability to access and interpret reference laboratory guidelines for submitting patient specimens for laboratory test procedures

Part III
Clinical Performance Objectives
Urinalysis

Upon completion of the rotation, the student will be able to:

- I. Laboratory Safety
 - a. Comply with the standard operating procedure (SOP) for specimen handling, distribution, and storage; including correct triage of specimen for in house and send out laboratory testing
 - b. Follow departmental protocol, demonstrate safe work practices by:
 - i. Wearing personal protective equipment (PPE) as required
 - ii. Handling and disposing of contaminated materials according to standard precautions
 - iii. Handling chemicals according to safety procedures
 - c. Dispose of waste according to laboratory protocol
- II. Specimen Handling
 - a. Check for correct identification/labeling of specimens according to the current National Patient Safety guidelines from JCAHO
- III. Quality Assurance
 - a. State the confidentiality policy of the facility during testing procedure and reporting in accordance with HIPAA guidelines
 - b. Observe basic computer applications where relevant
 - c. Report or record quality control results according to the SOP of the laboratory with 100% accuracy
- IV. Testing of Sample
 - a. Minimum of 25 urine specimens with 95% accuracy:
 - i. Describe the physical appearance
 - ii. Perform specific gravity analysis using the refractometer and/or dipstick methods
 - iii. Perform chemical analysis of the urine specimens
 - iv. Interpret results obtained from chemical analysis
 - v. Perform microscopic analysis on urine specimens according to the SOP of the laboratory
 - vi. Given a specimen or image, identify normal and abnormal constituents in a microscopic analysis of urine specimens with 95% accuracy. These constituents include:

1. Erythrocytes
2. Leukocytes
3. Epithelial cells: squamous, transitional, renal
4. Bacteria
5. Yeast
6. Casts: hyaline, fine and coarse granular, rbc, wbc, waxy
7. Crystals: uric acid, calcium oxalate, triple phosphate, tyrosine, cysteine, ammonium biurate
8. Oval fat bodies
9. Contaminants: fibers, talc, glass, etc.

- b. Operate automated dipstick readers with 100% accuracy.

V. Interpretation and Reporting of Results

- a. With 95% accuracy, correlate quantitative data with microscopic data
- b. Correlate abnormal results with associated common disease states
- c. Report all divergent or discordant results between quantitative and microscopic data to the clinical instructor
- d. Recognize all critical values and report these findings to the clinical instructor

VI. Technical Procedures for Body Fluids

- a. For the following procedures, it is essential that the student receive experience performing procedures and/or prepping send out samples
- b. Perform Fecal occult blood testing
- c. Correlate abnormal results with associated common disease states
- d. Report all divergent or discordant results between quantitative and microscopic data to the clinical instructor
- e. Recognize all crucial values and report these findings to the clinical instructor

Part IV
Clinical Performance Objectives
Hematology

Upon completion of the rotation, the student will be able to:

- I. Specimen Handling and Processing
 - a. Comply with the standard operating procedures for specimen handling and distribution.
 - b. Following departmental protocol, demonstrate safe work practices by:
 1. Wearing personal protective equipment (PPE) as required.
 2. Handling and disposing of contaminated materials according to standard precautions.
 3. Handling chemicals/reagents according to safety procedures.
 - c. Accept only specimens that meet standard laboratory protocol.
- II. Quality Control, Quality Assurance and Regulatory Issues
 - a. Evaluate QC results according to criteria established for each test.
 - b. Describe the various periodic (daily, weekly) maintenance routine for each piece of equipment used during clinical rotations.
 - c. Observe basic computer applications where relevant.
 - d. Document instrument maintenance and quality control.
 - e. Complete all work within established turnaround time.
 - f. Report critical and discrepant results to the clinical instructor/supervisor.
 - g. State the confidentiality policy of the facility during testing procedures and reporting, according to HIPPA guidelines.
 - h. Describe the process used to implement a new lot number of control material.
- III. Technical Procedures for Hematology
 - a. Operate automated hematology instrumentation with minimal supervision and within acceptable ranges

- b. Using the verification rules, evaluate a minimum of 20 patient results:
 - 1. Identify results that need technologist verification
 - 2. State the “follow-up” on these results
- c. Discuss test results that “trigger” the need for review, including:
 - 1. Delta checks
 - 2. Feasibility range
 - 3. Critical Values
 - 4. Contamination or interfering substances
 - 5. Morphology and CBC do not match
- d. Recognize interfering substances for procedures performed and suggest resolutions to the satisfaction of the instructor
- e. Recognize and report all critical values and discrepant results to the clinical instructor
- f. State the reflex testing or corrective actions for abnormal automated results
- g. Differentiate between normal and abnormal scattergram (plot) patterns
- h. Associate abnormal hematological results with possible pathology
- i. Demonstrate proper technique in preparing peripheral smears for microscopic examination to the satisfaction of the clinical instructor
- j. Identify and grade abnormal red cell morphologies, according to laboratory guidelines, to include: Microcytes, Macrocytes, Ovalocytes, Spherocytes, Target Cells, Sickle Cells, Schistocytes, Burr Cells, Teardrops, Acanthocytes, and Rouleaux
- k. Identify red cell inclusions to include: Howell Jolly Bodies, Pappenheimer Bodies, Siderotic Granules, Heinz bodies, and Basophilic stippling
- l. Grade hypochromia and polychromasia according to laboratory guidelines.
- m. Given a peripheral smear or slide image, recognize immature white cells.

- n. Given a peripheral smear or slide image, recognize immature red blood cells.
- o. Evaluate peripheral blood smears (number to be determined by affiliate) for acceptable cellular distribution and staining, platelet estimates, inclusions, and RBC morphology, according to laboratory guidelines and to the satisfaction of the clinical instructor.
- p. Identify qualitative white cell inclusions to include: toxic granulation, toxic vacuolization, Döhle bodies and Auer rods.
- q. Correct the WBC count for nucleated red blood cells according to laboratory guidelines.
- r. Given a peripheral smear or slide image, recognize (but not speciate) malarial forms.
- s. Recognize abnormal platelet morphology.
- t. Perform or discuss reticulocyte counts. If performed, the results should be within 20% of technologist-recorded results.
- u. Perform an ESR with minimum supervision and within QC guidelines.

IV. Technical Procedures for Coagulation

- a. Perform procedures relative to the coagulation menu at the clinical affiliate
- b. Perform minor troubleshooting procedures of available coagulation instrumentation

Part V
Clinical Performance Objectives
Chemistry

Upon completion of the rotation, the student will be able to:

- I. Specimen Handling and Processing
 - a. Comply with the standard operating procedures for specimen handling and distribution.
 - b. Following departmental protocol, demonstrate safe work practices by:
 - i. Wearing personal protective equipment (PPE) as required.
 - ii. Handling and disposing of contaminated materials according to standard precautions.
 - iii. Handling chemicals/reagents according to safety procedures.
 - c. Accept only specimens that meet standard laboratory protocol.
- II. Quality Assurance, Quality Control and Regulatory Issues
 - a. Evaluate QC results according to criteria established for each test
 - b. Describe various periodic (daily, weekly) maintenance routine for each piece of equipment used during clinical rotations
 - c. Observe basic computer applications/LIS where relevant
 - d. Document instrument maintenance and quality control
 - e. Identify control results that are not within the accepted quality control limits with 100% accuracy
 - f. Perform or Observe appropriate actions for unacceptable control results
 - g. Complete all work within established turnaround time
 - h. Report critical and discrepant results to clinical instructor/supervisor
 - i. State the confidentiality policy of the facility during testing procedures and reporting, according to HIPAA guidelines
 - j. Describe the process used to implement a new lot number of control material
- III. Performance of Procedures
 - a. Operate automated instrumentation with minimal supervision within acceptable ranges
 - b. Using the verification rules, evaluate a minimum of 20 patient results:
 - i. Identify results, which prevent autoverification and need technologist verification.
 - ii. State the “follow-up” on these results.

- c. Discuss test results that “trigger” the need for review, including:
 - i. Delta checks
 - ii. Feasibility range
 - iii. Critical values
 - iv. Contamination or interfering substances
- d. Recognize interfering substances for procedures performed and suggest resolutions to the satisfaction of the instructor.
- e. Recognize and report all critical values and discrepant results to the clinical instructor.
- f. State the reflex testing or corrective actions for abnormal automated results.
- g. Perform testing for the equivalent amount of time for one work shift, at a minimum, with acceptable results within the laboratory’s timeframe specified for stat and/or routine turnaround time.
- h. Operate at least one analyzer with minimal supervision in accordance with laboratory protocol.
- i. Observe the sample path or flow in two instruments.
- j. Discuss the theoretical principles for each analytical methodology
- k. Demonstrate the ability to organize workflow.
- l. Recognize common malfunctions of the instrument.
- m. Describe or demonstrate basic trouble-shooting skills.

IV. Interpretation and Reporting of Results

- a. Identify patient values that are significantly different (e.g. risk values, panic values, analytical errors) and bring these to the attention of the technologist immediately.
- b. Determine need for repeat analysis on unacceptable reportable ranges.
- c. Determine whether results fit the expected pattern with respect to previously obtained results on the same test or other test results on the same patient.
- d. Evaluate a minimum of 20 patient results according to laboratory protocol for routine results, STAT results (including telephone results) and panic value results.
- e. Correlate laboratory data with clinical implications with 70% accuracy.
- f. Correlate abnormal test results to corresponding disease states with 100% accuracy.

Part VI
Clinical Performance Objectives
Microbiology

Upon completion of the rotation, the student will be able to:

- I. Specimen Handling and Processing
 - a. Demonstrate safe work practices, following departmental protocol:
 - i. Wearing personal protective equipment (PPE) as required
 - ii. Handling and disposing of contaminated materials according to standard precautions
 - iii. Handling chemicals according to safety procedures
 - iv. Properly using the biological safety cabinet when processing specimens
 - b. Evaluate specimens and requisitions for acceptability, according to laboratory standards with regards to:
 - i. Timeliness
 - ii. Appropriateness of specimen submitted for analysis requested
 - iii. Safety and security of collection system
 - iv. Completeness of essential patient information
 - c. Document rejected specimens according to laboratory standard precautions
 - d. Given plating instructions and media selection criteria:
 - i. Process a minimum of 20 bacterial specimens of different types and prepare smears for Gram stain (if appropriate), to the satisfaction of the clinical instructor
 - ii. Demonstrate proper aseptic technique and streaking method, obtaining isolated colonies
- II. Quality Control/Quality Assurance
 - a. Discuss, observe, or perform daily or weekly maintenance checks and documentation of equipment
 - b. Discuss, observe, or perform daily or weekly QC procedures and documentation
 - c. If divergent QC results, observe documentation and corrective actions
- III. Gram Stains
 - a. Following established laboratory procedure, perform direct Gram stain on a minimum of 15 specimens, with correct staining characteristics of organisms and cellular constituents (If clinical site does not perform gram stain, disregard)
 - b. Read a minimum of 15 direct Gram smears, matching the technologist's description of bacterial morphology and cell identification, and within +/- 1

gradation of the technologist's for quantification of bacteria and cells.

- c. Screen sputum smears for specimen quality, to the satisfaction of the clinical instructor.
- d. Evaluate smears for correct staining characteristics and suggest resolutions for improper staining.

IV. Blood Cultures

- a. Observe/ operate the continuous-monitoring blood culture system, to the satisfaction of the clinical instructor.
- b. Discuss/ Observe/ Perform daily/ weekly maintenance checks and documentation of instrument.
- c. After staining suspicious or positive cultures, detect the presence/ absence of organisms in the smears to the satisfaction of the clinical instructor.
- d. Using proper sterile techniques, subculture positive cultures to appropriate media, obtaining isolated colonies.
- e. Using laboratory protocol, perform rapid identification testing for ID of isolates, when applicable, with 100% accuracy.

V. Rapid Testing

- a. Perform or discuss rapid vial antigen detection assays to the satisfaction of the instructor
- b. If available, observe any additional viral assays
- c. Perform Streptococcal antigen test with 100% accuracy

VI. Bacteriology

Upon completion of the rotation, the MLT student will:

For each type of specimen:

- a. Select isolated colonies from a culture plate and streak for isolation, obtaining isolated colonies
- b. Recognize alpha (α), beta (β) and gamma (γ) hemolysis with 100% accuracy
- c. Distinguish between gram-positive and gram-negative organisms using Gram stain characteristics and/or growth on selective media with 100% accuracy
- d. Correlate Gram stain results with isolates on culture plates, to the satisfaction of the clinical instructor
- e. Perform appropriate identification and AST on significant isolates, within a reasonable time limit as determined by the clinical instructor
- f. Identify positive vs. negative reactions for all routinely performed tests and tests performed on Microscan plates

- g. Correlate reactions with correct identification of significant isolates 80% of the time (Microscan system)
- h. Using the information obtained from Gram stain, isolation on select media, and biochemical testing, demonstrate the ability to utilize flow charts and coded systems to identify the following organisms with an 80% rate of success in identification.

<i>E. coli</i>	<i>Neisseria gonorrhoeae</i>	<i>Klebsiella/Enterobacter/Serratia</i>
<i>N. meningitidis</i>	<i>Citrobacter spp.</i>	<i>Moraxella catarrhalis</i>
<i>Salmonella spp.</i>	<i>Haemophilus influenzae</i>	<i>Shigella spp.</i>
<i>Haemophilus non-influenza sp.</i>	<i>Proteus/Providencia/Morganella</i>	<i>Campylobacter jejuni</i>
<i>Yersinia enterocolitica</i>	<i>Corynebacterium spp.</i>	<i>Staphylococcus aureus</i>
<i>Clostridium perfringens</i>	<i>Staphylococcus saprophyticus</i>	<i>Bacteroides fragilis group</i>
<i>Staphylococcus-coagulase-negative</i>	VRE	<i>Enterococcus faecalis/faecium</i>
<i>Aeromonas sp.</i>	<i>Prevotella spp.</i>	Group D Streptococcus
<i>viridans Streptococci</i>	<i>Acinetobacter baumannii</i>	<i>Streptococcus pneumoniae</i>
<i>Beta Streptococci Gp A/Gp B/others</i>	<i>Pseudomonas aeruginosa</i>	<i>Stenotrophomonas maltophilia</i>
<i>Vibrio spp.</i>	MRSA	<i>Listeria monocytogenes</i>

VII. Urine Cultures

- a. Differentiate lactose vs. non-lactose-fermenters with 100% accuracy
- b. Quantify colony counts according to laboratory protocol, matching the instructor's counts
- c. Using laboratory criteria, determine which colony counts/isolates require identification and susceptibility testing with 100% accuracy

VIII. Respiratory Cultures

- a. With direct supervision, observe expected normal upper respiratory flora on a minimum of 10 specimens.
- b. Using laboratory criteria, determine which isolates are considered significant for identification and susceptibility tests to the satisfaction of the clinical instructor.

IX. Wound/Blood/Body Fluid Cultures

- a. With direct supervision and using laboratory criteria, determine which isolates are considered significant for ID and AST, to the satisfaction of the clinical instructor
- b. Evaluate the significance of isolates from IV catheter lines
- c. Set up and maintain anaerobic conditions to insure viability of isolates, to the satisfaction of the clinical instructor
- d. Where applicable, evaluate specimens for the presences of group B streptococci

X. Stools

- a. Recognize suspicious colonies of possible enteric pathogens on selective media to the satisfaction of the clinical instructor
- b. Appropriately describe collection techniques and examine the acceptability of specimens for send out to reference laboratory
- c. Where applicable, evaluate specimens for ID testing

XI. Susceptibility testing (AST)

- a. If applicable, perform manual AST, such as:
 - i. Disk diffusion
 - ii. MIC
 - iii. E-test
- b. Using CLSI charts, interpret S, I, R results for dis-diffusion and MIC, without error
- c. Interpret Microscan susceptibility results and report to provider

Part VII
Clinical Performance Objectives
Immunoematology (Blood Banking)

Upon completion of the rotation, the student will be able to:

- I. Specimen Handling and Processing
 - a. Following departmental protocol and demonstrate safe work practices by:
 - i. Wearing personal protective equipment (PPE) as required
 - ii. Handling and disposing of contaminated materials according to standard precautions
 - iii. Handling chemicals according to safety procedures
 - b. Determine the acceptability of a sample for compatibility testing based on sample age, sample appearance and institutional policy
- II. Quality Assurance/Quality Control and Regulatory Issues
 - a. Perform daily quality control for routine testing according to the operating procedures of the laboratory with 100% accuracy
 - b. Recognize discrepant results in routine ABO, Rh, and antibody screen testing with 100 accuracy
 - c. Report all discrepant results to the clinical instructor
 - d. Perform or observe basic laboratory computer applications where relevant
 - e. Review the daily control activities that are performed in the lab to include:
 - i. Daily quality control, maintenance checks, daily temperature checks and inventory
- III. Routine Technical Procedures-ABO/Rh, Ab Screen and DAT
 - a. Using a “0 to 4+” scale, grade macroscopic agglutination reactions within ± 1 agglutination grade of the instructor
 - b. Prepare a 3-5% red cell suspension as needed for tube testing
 - c. Label test tubes for routine testing according to laboratory procedure without

error

- d. Perform ABO and Rh testing on a minimum of 15 samples with 100% accuracy
- e. Interpret the results of ABO and Rh testing without error
- f. Perform weak D testing on designated patient samples when available
- g. Perform ABO confirmatory testing on a minimum of 15 donor segments with 100% accuracy
- h. Identify mixed field agglutination in 2 samples to the satisfaction of the clinical instructor
- i. Perform DAT and DAT Battery on a minimum of 2 samples to the satisfaction of the clinical instructor

IV. Routine Technical Procedures-Cross-Matching and Transfusion Management

- a. Label test tubes for routine compatibility testing according to laboratory protocol without error
- b. Perform the appropriate cross-match procedure, immediate spin (IS) or Full (IAT), on a minimum of 5 samples when given the relevant patient information and the policy of the laboratory
- c. Select the most appropriate donor units to crossmatch with a patient when ABO specific red cells are available and when not available
- d. Select the most appropriate donor units when the patient presents with a single alloantibody
- e. Interpret the results of crossmatching with 100% accuracy
- f. Perform or discuss the prenatal (mother) and postnatal (mother and newborn) serologic workups for managing cases of HDN
- g. Observe or discuss the procedures for RhIg administration including candidate selection, FMH screening, and dosage determination
- h. Perform or describe a minimum of 1 transfusion reaction work-up according to laboratory protocol

V. Reference Procedures

- a. Perform routine antibody identification panels on a minimum of 5 samples according to the acceptable precision of the laboratory
- b. Interpret the results of routine and selected cell panels to determine the specificity of single antibody (simple)
- c. Perform or discuss the following reference techniques to assist in antibody identification:
 - i. Selected cell panel
 - ii. Red Cell (antigen) phenotyping
 - iii. Enhancement media (PeG & LISS)

VI. Donor/Components/Product Disposition

- a. Review The inventory management and inspection of blood products
- b. Issue or observe the issue (release) of a minimum of 2 blood products for administration

Part VIII
Clinical Performance Objectives
Immunology and Serology

We acknowledge that not all clinical sites will perform the following tests, but would expect that the tests not performed could be discussed with the students.

Upon completion of the rotation, the student will be able to:

- I. Laboratory Safety
 - a. Comply with the standard operating procedure (SOP) for specimen handling, distribution, and storage including correct triage of specimen for in house and send out laboratory testing
 - b. Following departmental protocol, demonstrate safe work practices by:
 - i. Wearing personal protective equipment (PPE) as required
 - ii. Handling and disposing of contaminated materials according to standard precautions
 - iii. Handling chemicals according to safety procedures
 - c. Dispose of waste according to laboratory protocol
- II. Specimen Handling
 - a. Check for correct identification/labeling of specimens according to the current National Patient Safety guidelines from JCAHO
- III. Quality Assurance
 - a. State the confidentiality policy of the facility during testing procedure and reporting in accordance with HIPAA guidelines
 - b. Observe basic computer applications where relevant
 - c. Report or record quality control results according to the standard operating procedures of the laboratory with 100% accuracy
- IV. Core Knowledge and Skills
 - a. Demonstrate pipetting technique by pipetting reagents and samples to the

satisfaction of the clinical instructor

- b. Calculate all specimen dilution concentrations with 100% accuracy

V. Immunology Assay Methodologies/Instruments

IF AVAILABLE

- a. Perform the following assays to the satisfaction of the clinical instructor: Latex agglutination, Hemagglutination, EIA
- b. Observe, if available on site, the following assays: Immunodiffusion, Direct and Indirect Immunofluorescence

VI. Bacterial and Viral Serology

- a. Perform bacterial serology testing
- b. Discuss or perform hepatitis assay
- c. Perform a minimum of 5 screening tests for infectious mononucleosis
- d. Observe or discuss an HIV antibody screen

CLINICAL PERFORMANCE EVALUATION

https://docs.google.com/forms/d/e/1FAIpQLScD5DegiCNL4lcvrqmi_jP3f-oE-B53eoxX2-ONdw4sK_4jLQ/viewform?usp=sf_link

TO: SAMPLE CLINICAL PLACEMENT AGREEMENT

FROM: Tyler Parisien, Ed.D., MLS (ASCP)^{CM}, Program Director Medical Laboratory Technician Program

RE: *Clinical Placement*

I am pleased to inform you that a clinical placement will be available for you at:

Trinity Hospital
1 W Burdick Expy
Minot, ND 58701
701-857-5000

Placement Dates: _____

You are responsible for providing your own transportation to the agency. The Program Protocol & Clinical Placement Policies defining student responsibilities, appropriate conduct including the dress code, attendance, punctuality, and supervision is outlined in the Student Handbook distributed previously.

You must have attained the minimum grade of “C” in the on campus lecture and laboratory components of the MLT courses in order to continue to the clinical practicum component at an affiliate laboratory. It is also expected that you maintain a minimum grade of “C” in all Program required courses to graduate with an Associate of Applied Science degree in Medical Laboratory Technician.

Additionally, students must comply with all policies and procedures of the affiliate laboratory during the placement period.

You may acknowledge your understanding and agreement to this clinical placement as well as your grade responsibility by signing and returning this letter to Dr. Tyler Parisien. By acknowledging this letter you are stating that you understand failure to comply with any policy will result in removal from a clinical site and may prohibit you from finishing your A.A.S degree.

Printed Name: _____

Date: _____

Signature: _____

Received on: _____

MEDICAL LABORATORY TECHNICIAN

WAITLIST NOTIFICATION

Date _____

Dear _____,

The Medical Laboratory Technician Program is required by our accrediting board, the National Accrediting Agency for Clinical Laboratory Science (NAACLS), to inform students of the policy to be followed in the event that enrollment exceeds the number of available clinical affiliation placements.

The Turtle Mountain Community College Medical Laboratory Technician Program will assign placements based on performance in all core courses and GPA. Students who are not assigned a clinical placement will be placed on a waiting list. Every effort will be made to find a clinical practicum placement for students.

Based on past experiences, the College does not anticipate any problems in assigning students to their clinical affiliation. However, placement on a waiting list may be necessary.

Sincerely,

Tyler Parisien, Ed.D., MLS (ASCP)^{CM}
MLT Program Director/Instructor