MITCHELL TECH

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## Medical Laboratory Technology Student Handbook

www.mitchelltech.edu

# Program Introduction

# Welcome to the Mitchell Technical College (MTC) Program for:
# Medical Laboratory Technology
# MLT Program

This program presents a unique didactic and clinical challenge to students: A combination of classroom study and clinical rotation for practical application. Most classroom study will occur on the MTC campus. Clinical practica will occur at a variety of hospital/clinic sites throughout South Dakota.

Students graduating from the program will be eligible for the national certification examination offered by the ASCP Board of Certification.

## STUDENT AGREEMENT

I have read the policies of MTC and the MLT Program and I agree to adhere to program policies described within.

_____

Print name

_____

Signature

_____

Date

# Mitchell Technical College
# Mission Documents

**VISION, MISSION, AND CORE VALUES** **MTC 110**

**Vision:**
Mitchell Technical College will be an innovative leader in technical education and a valued partner in global workforce development.

**Mission:**
It is the mission of Mitchell Technical College to provide skills for success in technical careers.

**Core Values:**

- Learning: MTC prepares students with the knowledge, skills, and mindset for lifelong learning and career success.

- Excellence: MTC integrates innovative technologies, instructional methods, and facilities to deliver high-quality, unique educational experiences.

- Personnel: MTC recruits, develops, and invests in skilled, dedicated, and student-oriented faculty and staff.

- Community: MTC fosters a community that values diversity, respect, and equity, advocating for the unique needs of each student's college experience.

- Improvement: MTC commits to improving student learning and institutional effectiveness through a system of assessment and continuous review.

- Advocacy: MTC promotes the value of technical education by building strong relationships with stakeholders and engaging in activities that raise awareness of the college's mission.

# Medical Laboratory Technology Program
# Mission Statement

The mission of the Mitchell Technical College Medical Laboratory Technician Program is to equip graduates with the skills needed to demonstrate entry-level competencies as MLT professionals.

**Program Goals:**

1. Students will demonstrate competency in the clinical setting.
2. Students will think critically.
3. Students will communicate effectively.
4. Students will demonstrate professional attitudes, behaviors, growth, and ethics.
5. Graduates will be prepared to become certified Medical Lab Technicians employed in their field.

**Program Outcomes:**
**At the completion of the program, graduates will be able to:**

1. Demonstrate competency in the clinical setting.
2. Apply critical thinking skills.
3. Demonstrate communication skills when working with patients and members of the healthcare team.
4. Follow legal and ethical guidelines in the medical laboratory field.
5. Meet acceptable benchmarks for BOC according to NAACLS Standard II.

# Faculty for the MLT Program

**Program Director:** Lynne M. Smith, M.Ed., MLS (ASCP)
B.S., South Dakota State University
M. Ed., South Dakota State University

**Faculty:** Shirlyce Weisser, MLT (ASCP)
A.A.S., Mitchell Technical College
B.G.S., South Dakota State University

# Admissions Procedures

# NON-DISCRIMINATION POLICIES

**Non-Discrimination Statement**

Mitchell Technical College does not discriminate in its employment of policies and practices, or in its educational programs on the basis of race, color, creed, religion, age, gender (including pregnancy), sexual orientation, disability, national origin, or ancestry, military/veteran status, genetic information or any other category protected by law.

**Sexual Harassment - Title IX (MTC Policy 117)**

Title IX is part of a 1972 federal education law that prohibits discrimination on the basis of sex in any federally funded education program or activity. Sexual harassment and sexual violence are forms of sex discrimination. Mitchell Technical College is committed to providing a workplace and educational environment, as well as other benefits, programs, and activities, that are free from sexual harassment. To ensure compliance with federal and state civil rights laws, MTC has developed this policy and related procedures to provide a prompt, fair, and impartial process for those involved in an allegation of sexual harassment as defined by this policy. MTC values and upholds the equal dignity of all members of its community and strives to balance the rights of the parties during what is often a difficult time for all those involved. Inquiries concerning discrimination, sexual harassment, and the application of Equal Opportunity, Title IX or Section 504 may be referred to the Mitchell Technical College Title IX Coordinator named below. Reports concerning discrimination, sexual harassment, and the application of Equal Opportunity, Title IX or Section 504 can be made at any time, including non-business hours by using the Title IX Coordinator's listed telephone number or email address, or by any other means that results in the Title IX Coordinator receiving the person's verbal or written report.

Scott Fossum, Vice President for Academic Affairs/Title IX Coordinator
scott.fossum@mitchelltech.edu
Mitchell Technical College
1800 E. Spruce St.
Mitchell, SD 57301
Phone: (605) 995-7178

OR

US Department of Education - Office for Civil Rights
One Petticoat Lane
1010 Walnut Street, 3rd floor, Suite 320
Kansas City, MO 64106
Phone: (816) 268-0550
Fax: (816) 268-0599
TDD: (800) 877-8339
Email: ocr.kansascity@ed.gov

## MLT PROGRAM ADMISSION CRITERIA

**Each of the following must be met:**

**Qualifications for Admission**

1. Applicant must be in good health and must be able to comply with the "Physical Demands and Working Conditions" as outlined in the Essential Requirements and MLT Competency Release forms enclosed. Applicants must also meet the immunization requirements.

2. Communication requirements: To ensure patient safety, fluency in written and spoken English is essential.

3. Environmental risks: Individuals may be exposed to bloodborne pathogens and physical hazards such as needle sticks or injuries sustained from collection and processing of body fluid samples, equipment, or materials.

4. The applicant must be a high school graduate or have an equivalent certificate.

5. Applicants are encouraged to submit American College Testing Program (ACT) scores. An ACT composite score of 18 is the admissions standard.

6. Upon acceptance to the program, a background check must be successfully completed at the applicant's expense.

7. In the event the student did not take the ACT test, the Accuplacer will be administered. The Accuplacer test is the entrance test used at MTC.

   Admissions personnel and program faculty have met to discuss the testing standards for respective programs.

   The **minimum** Accuplacer entrance scores for each category are listed below:

   | | |
   |---|---|
   | Reading | 254 |
   | Math | 224 |
   | English | 250 |

8. Applicant's overall high school GPA must be at least 2.5 on a 4.0-point scale or equivalent.

9. Applicants must have completed high school Algebra I and II, chemistry, and biology with a "C" grade or better.

10. Meet with the program director and admissions staff to review program prerequisites and requirements if the above criteria are not met.

The program director will make the final decision on admission to the program.

**Admission Process**

1. Obtain application packet from MTC Admissions Office.
2. Submit necessary information to the Admissions Office.
3. Successfully complete a background check at the applicant's expense.
4. If admission requirements are met, the applicant will be notified of admission to the MLT program.

**Pre-training Health Assessment / Immunization**

The Medical Laboratory Technology program does not require a physical before entrance to the program is granted. However, it is suggested that all applicants review the physical requirements and working conditions listed in Essential Requirements for Clinical Laboratory Sciences description. The program does require certain immunizations before the student is allowed to perform their clinical practicum. These immunizations are required out of concern for student health and safety in the clinical setting.

Please refer to the immunization section on page 14.

**If any of these requirements are not met, the applicant must meet with the program director and admission staff to review program prerequisites and requirements. The Program Director will make the final decision on admission to the program.**

**MITCHELL TECHNICAL COLLEGE ADMISSION REQUIREMENTS**

The MTC Catalog and Student Handbook contains admissions requirements, how to apply for admission, and the admissions process. Placement testing policies, admissions guidelines, and information regarding immunization requirements can be found in the Catalog and Student Handbook, published on the MTC website.

Be the Best.

Mitchell Technical College
1800 E Spruce Street • Mitchell, South Dakota 57301 • (800) MTC-1969 • www.mitchelltech.com

Dear Student:

We would like to welcome you to the Medical Laboratory Technician program at Mitchell Technical College. As you may know, careers in health care are the fastest growing occupations in the employment sector. We would like to take this opportunity to share with you some information about the program.

This two-year program will prepare you for employment as a Medical Laboratory Technician responsible for performing laboratory analysis. You will spend three intensive semesters taking courses such as Medical Laboratory Fundamentals, Anatomy/Physiology, Hemostasis, Hematology, Intro to Lab Chem, Clinical Chemistry, Immunohematology and others. Specific course requirements are detailed in the MTC Catalog and Student Handbook.

After completion of classroom and laboratory classes, you will be assigned to an affiliated hospital or clinical lab for a six-month externship. During this time, you will work under the supervision of lab personnel and will perform tests and other lab work as well as complete class assignments.

As you prepare to enter this exciting career field, there are a few things you should know about the required competencies for a certified lab technician. Of course, you will have to adhere to the academic competencies and requirements of MTC. In addition to those, you will need to have the ability to learn to perform several tasks. Please read the attached carefully and determine if you have any limitations that would prohibit you from performing any one of the fifteen tasks. If not, detach, sign and return the form to the MTC Admissions Office. We must have a signed copy of this release on file to complete your application file. If you do have a limitation that would prohibit you from performing any task on this list, please contact the Admissions Office by telephone or in person immediately.

We look forward to meeting with you and answering your questions. Please call our Admissions Office to set up a time when you can visit with us. If we can be of any assistance, please call.

Sincerely,

Lynne M. Smith, M.Ed., MLS (ASCP) Program Director
Medical Laboratory Technician

# COMMITTEE ON MEDICAL TECHNOLOGY EDUCATION
# Essential Requirements for Clinical Laboratory Sciences

Essential requirements are performance related and provide criteria so that the potential applicants can independently evaluate their own ability to fulfill the expected requirements of a medical laboratory technician. These requirements are made available to facilitate a valid career choice by the potential applicant. The achievement of these cognitive and technical competencies should not endanger or compromise the health and welfare of other students, patients, or allied health professionals and should not impose "undo hardship" upon the medical facility and/or its patients. If you are not sure that you will be able to meet the essential requirements, please consult with the Program Director for further information and to discuss your individual situation.

The applicant needs to be able to meet the following minimum Essential Requirements:

1. Ability to satisfy visual requirements:
    a. Read orders, policies, procedures, test results, charts, graphs, instrument printouts, number sequence, etc.
    b. Differentiate colors, e.g., test results, color codes, etc.
    c. Identify microscopic structures, cells, and organisms
    d. Determine specimen suitability.
2. Ability to satisfy motor/movement requirements:
    a. Report appropriately to alarms, pagers, telephones
    b. Obtain and measure specimens and reagents precisely
    c. Prepare reagents, operate delicate instrumentation and analytical equipment according to established protocol
    d. Stand and/or sit for prolonged periods
    e. Comply with safety regulations, e.g., utilize protective equipment whenever there is a potential exposure to infectious organisms, body fluids, or toxic chemicals
    f. Perform duties requiring manual/finger dexterity, e.g., use a computer keyboard to accurately enter and transmit data and information in a timely manner, manipulate and adjust gauges and microscopes, perform venipunctures
    g. Reach laboratory bench tops and shelves, and patients lying in hospital beds or seated in specimen collection furniture
3. Ability to satisfy communication/behavioral requirements:
    a. Remain calm and exercise good judgment under stressful and/or emergency situations
    b. Communicated with patients, fellow students, visitors, and healthcare professionals by giving or receiving instructions, test results, and various messages verbally, in writing, by facsimile, or via the computer
    c. Maintain a cooperative and productive working relationship with patients, fellow students, and healthcare workers
    d. Remain flexible, creative, and adaptive to professional and technical change
    e. Manage time well and display fine organizational skills to effectively complete professional and technical tasks
    f. Practice honest, compassionate, ethical, and responsible conduct

4. Ability to satisfy intellectual/conceptual requirements:
    a. Possess these intellectual skills: comprehension, measurement, mathematical calculation, reasoning, integration, analysis, comparison, self-expression, and criticism
    b. Exercise sufficient judgment to recognize and correct performance deviations
    c. Prepare, review, and evaluate papers, laboratory reports, reagents and materials to meet the needs of various procedural standards.

The National Accrediting Agency for Clinical Laboratory Sciences requires that accredited Medical Technology Programs define and publish essential functions required for admission to the program.

**Please sign this form to indicate that you have read and understood the program's essential requirements (technical standards) and believe that you can meet them.**

Applicant's Signature _____ Date _____

# IMMUNIZATIONS

Students must have current immunizations or laboratory verification of immune status as required by contracts with clinical facilities and CDC recommendations.

**The following immunization requirements must be met or in process before the student will be allowed to enter the clinical setting.**

Official copies of immunizations must be available. Documentation of student immunization status is essential to ensure the health and safety of students and patients/residents in healthcare agencies that provide clinical learning experiences.

1) PPD (Tuberculin Skin Tests)
   a) Incoming MLT students are required to complete the two-step procedure unless documentation of the results of a TB test completed during the previous 12 months is provided. If this documentation is provided, a one-step TB skin test will be sufficient. For the initial two step PPD, two separate tuberculin skin tests will need to be placed one to three weeks apart. Each test is read 48-72 hours after it has been placed. Documentation must show the dates and results of the test, as well as the lot numbers of the vaccine.
   b) Students with a positive PPD must provide documentation of a chest x-ray, treatment (if necessary), and a release to work in a healthcare setting from a doctor or healthcare provider.
2) Hepatitis B Vaccines and/or Titer
   a) This is a three-shot series vaccination. Students must have the **second** injection prior to entering the program. Adults getting Hepatitis B vaccine should get three doses with the second dose given four weeks after the first and the third dose five months after the second. Your healthcare provider can tell you more about dosing schedules that might be used in certain circumstances.
   b) If documentation of 3 Hepatitis vaccines is unavailable, a titer must be drawn. The titer needs to show immunity to Hepatitis B. If the titer is negative, the student is required to repeat the Hepatitis B three-dose series.
3) Measles, Mumps, Rubella (MMR) Vaccines
   a) Student must provide documented administration of two doses of MMR vaccines OR documentation of titer indicating immunity to all three infections. Medical documentation of an allergic reaction that would prevent MMR vaccination is needed.
4) Tetanus/Diphtheria/Pertussis (Tdap) Immunization
   a) Students must have a current, within 10 years, Tetanus/Diphtheria/Pertussis injection, or booster.
5) Varicella (Chickenpox) Immunization
   a) Documentation of a varicella titer showing immunity; or
   b) Documentation of two administered doses of Varicella vaccine
6) Influenza Vaccine
   a) Students are required to receive an annual influenza vaccination by October 31$^{st}$ of each year. Written documentation is needed from a healthcare provider for those indicating a flu vaccination cannot be administered.

# TRANSFER STUDENTS

Students with prior post-secondary credits with a grade of C or better may transfer credits to the MLT program. These credits will be evaluated comparatively to the credit requirements of the same curriculum/course at MTC and must have the approval of the Program Director.

All admission requirements must be met as set forth by Mitchell Technical College

Transfer credits must meet the criteria found in the Mitchell Technical College catalog.

# Curriculum

# GENERAL DESCRIPTION OF THE MLT PROFESSION

The medical laboratory technician (MLT) is an allied health professional who is qualified by academic and practical training to provide service in clinical laboratory science. The MLT must also be responsible for his/her own actions as defined by the profession.

The ability to relate to people, a capacity for calm and reasoned judgment and a demonstration of commitment to the patient are qualities essential for a MLT. They must demonstrate ethical and moral attitudes and principles, which are essential for gaining and maintaining the trust of professional associates, the support of the community and the confidence of the patient and family. An attitude of respect for the patient and confidentiality of the patient's records and/or diagnosis must be maintained.

The MLT program at MTC is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS). A student spends the first three semesters of the program on the campus in classrooms and laboratories at MTC. The fourth semester of the program is at an affiliated hospital/clinic for a clinical practicum externship. During this time the student will work under the supervision of the laboratory personnel performing tests and other laboratory work as well as completing class work.

Upon successful completion of the MLT Program the student will be awarded an Associate of Applied Science Degree. Graduates are eligible to take the BOC certification exam for Medical Laboratory Technicians (MLT) offered by the ASCP Board of Certification.

# MEDICAL LABORATORY TECHNOLOGY COURSE DESCRIPTIONS

**ML 104 MEDICAL LABORATORY FUNDAMENTALS/LAB**
(A grade of "C" or above is required for continuation of technical courses.)
This course covers introduction to medical laboratory work with specific reference to the role, ethics, conduct, certification, education, employment and fundamental knowledge and skills related to medical laboratory personnel. Basic mathematics review and lab related math such as the metric system, temperature conversions, concentration units, dilutions, ratios and statistics used in quality control are covered. Included in this course are laboratory safety requirements including Universal Precautions. Collections and preparation of laboratory specimens are covered to include venipunctures and capillary sticks, reporting of laboratory results, and quality assurance. A grade of "C" or below in either lab or lecture will mandate that the student must repeat Fundamentals lecture and the Fundamentals lab classes.

**ML 105 LABORATORY INSTRUMENTATION**
(A grade of "C" or above is required for continuation of technical courses.)
This class is about laboratory instrumentation to include basic design of advanced laboratory automation used in today's laboratory. This will include laboratory glassware, centrifuges, microscopes, balances/scales, pipetting, spectrophotometry, turbidimetry, nephelometry, chromatography and more advanced quality assurance.

**HS 103 ANATOMY/PHYSIOLOGY**
(A grade of "C" or above is required for continuation of technical courses.)
The course covers the basic anatomy and physiology of the human body as well as medical terminology. Systems studied include integumentary, muscular-skeletal, nervous, circulatory, lymphatic, respiratory, urinary, digestive, endocrine, and reproductive. Major emphasis is on relationships with diagnostic medical laboratory tests.

**ML 121 URINALYSIS/BODY FLUID**
(A grade of "C" or above is required for continuation of technical courses.)
The course covers the anatomy, physiology and related pathology of the urinary system. Major emphasis is on the related theory and performance of physical, chemical and microscopic analysis of urine as well as collection, preservation and proper reporting of analysis. Certain renal function tests are covered. Included also are the anatomy, physiology, and related pathology of body fluids to include feces, semen, laboratory collection preparation, preservation and analysis of body fluids. Introduction to cell counts of other body fluids such as spinal fluid, transudates and exudates are included.

**HS 101 MEDICAL TERMINOLOGY**
(A grade of "C" or above is required for continuation of technical courses.)
The course covers basic medical terminology to include root words, suffixes and prefixes commonly used in the medical field. Students learn to pronounce, learn the definitions and use a combination of these in the laboratory sciences.

**ML 171 IMMUNOLOGY/SEROLOGY**
(A grade of "C" or above is required for continuation of technical courses.)

The course covers basic genetics, meiosis, mitosis, and understanding of the immune system as the antigen/antibody reactions, origin, stimulation, body response and rejection. A study of immunoglobulins, complement and classifications of immunity are included. Theory and practical applications of immunoassay procedures are reviewed. Serological aspects include the related theory and performance of procedures and understanding of antigen/antibody reactions.

**ML 144 INTRODUCTION TO LABORATORY CHEMISTRY**

(A grade of "C" or above is required for continuation of technical courses.)
A beginning course in general and biological chemistry with applications specific to the medical laboratory. The student will become familiar with chemical terminology, the atomic structure, ionic and molecular compounds, organic chemistry, acids and base balance. The biochemistry of carbohydrates lipids, proteins, enzymes and hormones are presented and their relationship to the medical laboratory.

**ML 111/112 HEMATOLOGY/HEMOSTASIS/LAB**

(A grade of "C" or above is required for continuation of technical courses.)
The course covers the anatomy, physiology, and related pathology of the circulatory system with specific reference to the formation function and identification of blood cells. Major emphasis is on the related theory and performance of hematological procedures such as sample identification and collection and preparation, Automated leukocyte and erythrocyte counts, hemoglobin and hematocrit measurements, WBC Differentials, Leukocyte and erythrocyte morphology, RBC indices, erythrocyte sedimentation rate, platelet counts, reticulocyte counts, and eosinophil counts. Specific methodologies in common use in medical laboratories are followed. Hemostasis covers the theory and practical application of blood testing regarding coagulation. Disease related Hemostasis is emphasized.

**ML 230 CLINICAL CHEMISTRY**

(Prerequisite of C or better in Basic Chemistry)
Course covers basic clinical chemistry and performance of the related theory of analytical chemical procedure such an identification, collection, handling, standardization and quality control of such chemical procedures as carbohydrate tests, renal function tests, therapeutic drug monitoring, endocrinology, and toxicology.

**ML 240 MICROBIOLOGY**

(A grade of "C" or above is required for continuation of technical courses.)
The course covers classification, identification and pathology of disease-causing organisms such as bacteria, fungus, yeasts, viruses, rickettsiae and parasites. Major emphasis is on the related theory and performance of microbiological procedures such as collection and preparation of specimens, culturing methods, media preparation, staining techniques, antibiotic, sensitivity testing and identification of bacteria and other organisms.

**ML 272 IMMUNOHEMATOLOGY (BLOOD BANKING)**

(A grade of "C" or above is required for continuation of technical courses.)
(Prerequisite of C or better in Immunology/Serology)
The course covers the basic immunohematology aspects of blood factors and their relationship to blood transfusion and disease states. Topics include the history, identification, inheritance of blood factors and antigen/antibody relationships, involving detection of blood factors. Major emphasis is on the related theory

and performance of immunohematology procedures such as ABO grouping, Rh typing, identification of other blood factors, direct and indirect anti-globulin testing, Antibody screening, identification and titer, compatibility testing, transfusing of blood and blood components, selection, collection, storage of donor blood, and quality assurance.

All MLT students are required to take the six required General Education courses with a total of 16 credits for completion of their Associate of Applied Science Degree, which are:

Composition
Mathematics
Speech
Behavioral Science Elective
Social Science Elective
Student Success

**If a student fails to achieve a "C" in a required technical course, that student must reapply for admission to the program with the program director's permission. A student may not take a course more than two times.**

**Failure to maintain a 2.0 grade point average at MTC will prevent readmission to the program.**

**If a student has failed a technical course/courses but has successfully completed others and wishes to remain in the program, the program director must give permission for the student to audit the course/courses they passed while completing the required courses to graduate. A written contract will be presented with guidelines that must be followed to be able to continue in the program.**

**All general educations courses must be completed before leaving for the clinical externship experience.**

# PRACTICUM COURSES
# COURSE DESCRIPTIONS—CLINICAL PRACTICUM

Clinical practicum takes place at an affiliated medical laboratory. The major portion of the clinical practicum coursework is observing, practicing, and performing laboratory test procedures in a real work-type setting. Additional student activities during clinical practicum will include written assignments, keeping of records, taking comprehensive review examinations, and evaluation. The clinical practicum portion of the program is approximately 22 weeks in length for approximately 850 clock hours. The students' schedule and duties are set by the affiliated laboratory. The student is always supervised and is not paid a wage for time spent at the affiliated laboratory. The student will learn to organize a daily workload, increase technical expertise, recognize and correct performance errors, and follow a system of quality assurance and control.

**ML 214 PRACTICAL CLINICAL HEMATOLOGY:**
Some laboratory procedures expected in the Hematology/Hemostasis area are hemoglobin, hematocrit, leukocyte count, WBC differential sed-rate, erythrocyte count, platelet count, reticulocyte count, eosinophil count, prothrombin time, activated partial thromboplastin time, preparation of bone marrow smears, venipuncture and capillary puncture to obtain blood samples. Additional hematological procedures may be performed at the option of the affiliated laboratory.

**ML 224 PRACTICAL CLINICAL URINALYSIS:**
Some laboratory procedures expected in the Urinalysis area are routine physical and chemical test; microscopic identification of formed elements; collection and preparation of 24-hour samples for quantitative test; pregnancy tests; renal function tests; occult blood; spinal fluid and other body fluid testing. Additional urinalysis procedures may be performed at the option of the affiliated laboratory.

**ML 234 PRACTICAL CLINICAL CHEMISRY:**
Some laboratory procedures expected in the Clinical Chemistry area are quantitative measurement of glucose, urea nitrogen protein and albumin/globulin, bilirubin cholesterol, electrolytes, enzymes, creatinine uric acid, calcium, toxicology, endocrine test, minerals, pH, blood gases, and the collection of blood by venipuncture, capillary puncture and arterial puncture. Additional chemical procedures may be performed at the option of the affiliated laboratory.

**ML 244 PRACTICAL CLINICAL MICROBIOLOGY-SEROLOGY:**
Some laboratory procedures expected in Microbiology are taking, setting up, plating, incubating, transporting, and transferring microbiological cultures; identification of organisms involving techniques such as grams stain, special stains, biochemical identification systems, coagulase and catalase tests; and antibiotic susceptibility tests. Serological procedures might include RPR, ASO titer, infectious mono test, RA, C-RP test, hepatitis, rubella, AIDS, and other immunological procedures. Preparation of samples for parasitology and mycology study may also be included.

**ML 274 PRACTICAL CLINICAL IMMUNOHEMATOLOGY**
Some laboratory procedures expected in Blood Banking are ABO grouping, Rh typing, direct and indirect antiglobulin testing, antibody screening, and compatibility testing. Selection of blood donors, collection of blood for transfusion, storage and testing of blood and blood components. Additional blood baking procedures may be included at the option of the affiliated medical laboratory.

# MEDICAL LABORATORY TECHNOLOGY MLT PROGRAM

ASSOCIATE OF APPLIED SCIENCE DEGREE

Course schedule

**FIRST YEAR**

| First semester | | | Credits |
|---|---|---|---|
| ML | 104 | Medical Laboratory Fundamentals | 3 |
| HS | 103 | Anatomy/Physiology | 4 |
| MATH | 105 | Mathematical Reasoning | 3 |
| SPCM | 101 | Fundamentals of Speech | 3 |
| HS | 101 | Medical Terminology | 3 |
| ML | 105 | Laboratory Instrumentation | 2 |
| SSS | 100 | Student Success | 1 |
| | | TOTAL 19 | |

| Second semester | | | |
|---|---|---|---|
| ML | 111 | Hemostasis | 2 |
| ML | 112 | Hematology | 6 |
| ML | 144 | Intro to Laboratory Chem | 3 |
| ML | 171 | Immunology/Serology | 3 |
| ML | 121 | Urinalysis/Body Fluids | 3 |
| ENGL | 101 | English Composition | 3 |
| | | TOTAL 20 | |

**SECOND YEAR**

| First semester | | Credits | |
|---|---|---|---|
| ML | 240 | Microbiology | 6 |
| ML | 230 | Clinical Chemistry | 4 |
| ML | 272 | Immunohematology | 3 |
| HS | 100 | Basic Life Support for Health Care | 0.5 |
| | | Behavioral Science Elective | 3 |
| | | Social Science Elective | 3 |
| | | TOTAL 19.5 | |

| Second semester (Clinical Practicum) | | | |
|---|---|---|---|
| ML | 214 | Practical Clinical Hematology | 4 |
| ML | 224 | Practical Clinical Urinalysis/Body Fluids | 3 |
| ML | 244 | Practical Clinical Microbiology/Serology | 5 |
| ML | 274 | Practical Clinical Immunohematology | 4 |

| Summer Session | | | |
|---|---|---|---|
| ML | 234 | Practical Clinical Chemistry/Immunoassay | 6 |
| | | TOTAL 22 | |

# COURSE CURRICULUM AND GRADING

Each individual course in the Medical Laboratory Technician Program at Mitchell Technical College has a syllabus. Included in that syllabus is:

- Instructor
- Course Title
- Credits
- Prerequisites
- Course Description
- Course Purpose
- Course Objectives
- Student Participation/Contributions
- Method of Instruction
- Instructional Materials Evaluations and Requirements
- Grading Scale

# Program Policies

## General Considerations Expected of the Students in the Medical Laboratory Department

1. The instructor and the students are expected to demonstrate, both verbally and through their deportment, RESPECT, COURTESY and CIVILITY at all times.
2. The following student behaviors detract from the learning environment and students who fail to follow these guidelines will be asked to cease or leave the class.
    a. Reading materials not related to the ongoing class activities.
    b. Sleeping, talking or other forms of overt inattention that distract other students or the instructor.
    c. Cell phones must be turned off during class. In case of an emergency, please notify the instructor and allowances may be made.
    d. Conduct that is disrespectful towards the instructor or other students.
    e. Conversations that are not part of normal class discussion.
    f. Disruptive "early" closing of notebooks, putting on of coats, etc.
3. If a student has a concern about an instructor, the proper communication channel is to:
    a. First, visit with the instructor of that class about the concern.
    b. If the student feels that the concern is not addressed, the student should talk to the program director.
    c. If the issue is not resolved, or the concern is about the program director, the student should request assistance from staff in the Center for Student Success.
    d. A formal complaint may be filed following Policy MTC 1045.

## Re-admission Process

For a student to be re-admitted to the program after leaving, several requirements must be met:

1. The students must have withdrawn on their own accord and in good standing.
2. If the time between technical courses and externship will be one year or longer, technical courses must be repeated with a grade of "C" or better before entering an externship.
3. Students will be re-admitted only if there is a vacancy in the class behind them.
4. Applications from students who are withdrawn for more than one year will be considered with all other applications received for that year.

## Chemical Misuse and Dependency Policy

The Medical Laboratory Technology department follows the Drug and Alcohol Conduct Guidelines for Students found in the MTC Catalog and Student Handbook. Because of the requirements for certification and for the safety of the public, the MLT student policy further prohibits the use/misuse, possession, and distribution of controlled substances, drugs, and/or drug paraphernalia in any settings on- or off-campus related to MLT coursework. No student shall come to class, lab, or clinical setting while under the influence of alcohol, marijuana, controlled substances, or other drugs that can impair cognition and function.

When a college administrator, instructor, or clinical supervisor observes a student with behavior or appearance that is characteristic of alcohol or drug use in a school-related setting, the student will be required to submit to drug or alcohol testing. As soon as possible after the suspicion of impairment is voiced and brought to the student's attention, the student will be accompanied to a designated laboratory by an MTC representative such as faculty or a clinical supervisor. The student will be immediately suspended from school until test results are received. MTC is responsible for the cost of testing.

If a reasonable suspicion occurs in the clinical setting, a manager or site supervisor should also contact Medical Laboratory faculty 605-995-7106 or the MTC Director of Student Success at 605-995-7195.

If the results of the test(s) are positive, the student will meet with the Director of Student Success or designee to determine disciplinary and treatment options that the student must follow to be reinstated into school (refer to MTC Student Handbook Drug and Alcohol Conduct Guidelines). The Medical Laboratory Program Director may recommend that the student be dismissed from the program.

- If the results of tests indicate a negative drug screen for alcohol or other illegal substances or for nonprescribed legal substances, the student shall meet with the Medical Laboratory Technology Program Director within one business day of the test results to discuss the circumstances surrounding the impaired behavior and arrange for completion of any missed class work.
- If the indicator was the odor of alcohol, the student will be mandated to discontinue the use of whatever may have caused the alcohol-like odor before returning to class/clinical.
- If the indicator was behavioral, consideration must be given to a possible medical condition being responsible for the symptoms. A medical referral for evaluation may be required.

If a student refuses to submit to drug/alcohol testing, it will be considered a positive result, and the student will be removed immediately from the class/clinical setting. Transport arrangements will be made, and the student will remain out of the class/clinical area until a decision regarding the issue is finalized according to MTC's Drug and Alcohol Conduct Guidelines for Students.

## Cell Phones, Social Media and General Internet Use

While students are performing clinical rotations, they are expected to use the phones of the facility for work related purposes only. Personal calls during work hours should be made only if necessary. Personal cellular telephone use and/or text messaging while on work time is prohibited, except during designated break periods and emergencies. Students are expected to store personal cellular telephones with other personal items while in the clinical setting and not have them on their person.

Students are not allowed to browse the internet or participate in personal social networking while they are in the clinical setting and clocked in.

## Uniforms and Appearance

The MTC Department of Medical Laboratory Technology uniform is representative of Mitchell Technical College and of the laboratory profession. Students are required to meet these standards to project a professional image to patients, faculty and clinical staff. **These guidelines apply whether the student is wearing the scrub uniform or casual clothing.**

GROOMING & HYGIENE:

- Clean and neat appearance, not offensive, clothes tailored and properly fitted
- Conservative use of cosmetics, colognes, perfumes
- Fingernails must be well trimmed.
- Conservative hair color and style; hair that could come in contact with patients must be pulled back, ex: hair that touches the student's shoulders must be pulled back.
- Limited accessories
- Visible body piercings are unacceptable except for ears. Ears may be pierced but usually limited to 3 piercings on each ear.
- Existing tattoos must be concealed or approved by faculty if not concealable
- Men must be well groomed, and facial hair must be well trimmed

## Health Insurance Requirements

Students are required to carry their own health coverage. Proof of coverage must be provided to the faculty prior to beginning classes.

## Infection Control / Work Related Injuries

**Infection Control**

It is the student's responsibility to report all suspected body fluid exposures to the faculty immediately.

**School Related Injury**

Any injury, no matter how severe, should be immediately reported to faculty (see "Health Insurance Requirements").

## ATTENDANCE POLICIES

Attendance requirements for the MLT Program will follow the general attendance policy of Mitchell Technical College as described in the Student Handbook. Attendance at each meeting of classes is vital to success in the Program.

In addition, the following will apply:

1. Due to the length and nature of most of the laboratory exercise it usually will not be possible to "make them up" after an absence.
2. Each instructor will have their own policy regarding missed quizzes, assignments, and examinations. Students may or may not be allowed to "make up" such quizzes, assignments, and tests.
3. A satisfactory attendance record must be maintained by the student during the didactic course work to obtain a clinical practicum assignment.
4. Credit for assignments will not be given when students are absent or tardy.
5. It is the STUDENT'S RESPONSIBILITY to notify the instructors of absences and to find out what materials were covered.
6. In specific regard to the clinical practicum, successful completion requires full attendance of the specified training period with verified attendance records. Time missed by the student must be accounted for and approved by the affiliated site. During the clinical practicum, unsatisfactory

attendance, including tardiness, may be cause for dismissal. The advisory committee has determined an excess of five days without serious cause is unsatisfactory. Failure to complete an externship due to unsatisfactory evaluations or attendance will result in failure to graduate from the program.

## ATTENDANCE CONTRACT FOR EXTERNSHIP

An externship requires maturity, seriousness of purpose, and self-discipline. Every student is expected to attend each day, required to fulfill the approximately 850 hours or be deemed an entry level tech, to arrive on time, and to stay for the full scheduled shift. MTC recognizes that absences occur because of circumstances beyond a student's control, as well as from a student's failure to accept responsibility for attending the externship regularly. To that end, the following attendance policy will be followed:

1. You are allowed 5 days of absence on this externship. If more than 5 days of absences occurs a meeting with your clinical supervisor and the program director must take place to allow you to continue in the program. A plan of action will be discussed at this point to allow continuation in the program.
2. A tardy is equivalent to 1 hour of absence. An accumulation of 4 hours will be counted as one day of absence. A tardy is defined as being 10 minutes late.
3. If the student will be absent, the facility and the program director must be notified as soon as possible.
4. In the case of a major life event, exceptions may be made on an individual basis. For example, emergency surgery or death of a family member.

Program Director Signature: _____ Date: _____

Extern Signature: _____ Date: _____

Clinical Supervisor Signature: _____Date: _____

## Academic Integrity

Students are expected to do their own work unless advised that collaboration is acceptable. When taking a test, students are expected to keep their eyes on their own tests and protect their tests from being copied by classmates. To avoid plagiarism when using facts, quotes or ideas from another person or source, students must cite the source they used, even if they rephrase the content in their own words. Failure to use proper citation procedures is considered plagiarism.

Students who engage in academic dishonesty may be subject to assignment and/or course failure.

## ADA Statement

I wish to fully include persons with disabilities in this course. Please let me know if you need any special accommodation in the instruction or assessments of this course to enable you to fully participate. The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with documented disabilities. It is the responsibility of the student to contact the Mitchell Tech Disabilities Coordinator at 995-7135 to further coordinate accommodation.

## MTC Catalog and Student Handbook

Additional information related to academic policies and procedures can be found in the Mitchell Tech Catalog and Student Handbook. Information on tuition refunds, internships, credit hour system, grades, academic warning and suspension, repeating a course, and transferring to other institutions is all covered in the catalog and student handbook. MTC annually publishes the catalog and student handbook on its website. Archived copies from previous years are also available on the website.

# SAFETY AGREEMENT

Although there are certain hazards present in the medical laboratory, it is possible to make the laboratory a safe work environment. Each laboratory worker must agree to observe all safety rules posted or unposted which are required by the instructor or employer. No set of rules can cover all the hazards that may be present. However, several general rules are listed below:

1. Keep all personal items, such as purses, book bags, cell phones, and binders away from your working area. These items should be placed on the back tables in the laboratory.
2. Avoid eating, drinking, smoking, gum chewing, or applying makeup in the work area.
3. Wear a laboratory jacket or coat and closed-toe shoes.
4. Pin long hair away from face and neck to avoid contact with chemicals, equipment, or flames.
5. Avoid wearing chains, bracelets, rings or other loose hanging jewelry.
6. Use gloves when handling blood, biological specimens, and hazardous chemicals or reagents.
7. Use universal barrier precautions in handling patients and biological specimens, including human blood and diagnostic products made from human blood.
8. Disinfect work area before and after laboratory procedures and any other time necessary.
9. Wash hands before and after laboratory procedures, before putting on and after removing gloves, and any other time necessary.
10. Discard all contaminated material into an appropriate, labeled biohazard container. (A rigid, puncture-proof container must be used for disposal of sharp objects such as needles and lancets.)
11. Wear safety goggles when working with strong chemicals and when splashes are likely to occur.
12. Wipe up spills promptly and appropriately for the type of spill.
13. Avoid tasting, smelling, or breathing the dust of any chemicals.
14. Follow the manufacturer's instructions for operating equipment.
15. Handle equipment with care and store it properly.
16. Report any broken or frayed electrical cords, exposed electrical wires, or damaged equipment.
17. Discard any broken glassware into a safe container.
18. Allow visitors only into nonworking areas of the laboratory.
19. Report any accident to the supervisor immediately.

All students will agree to follow all set rules and regulations as required by the instructor or supervisor, including those listed above. Students have been informed that biological specimens and blood products may possess the potential of transmitting diseases such as hepatitis and acquired immunodeficiency syndrome (AIDS). Students understand that even though diagnostic products are tested for HIV antibodies and Hepatitis B surface antigen (HBsAg), no known test can offer 100% assurance that products derived from human blood will not transmit disease.

Student's signature: _____ Date: _____

# STUDENT HEALTH

Students are responsible for their own medical and health care costs. Affiliated sites will provide emergency health care to students; however, students will bear the cost.

Mitchell Technical College students are covered by professional liability insurance. Such professional liability insurance coverage provides a minimum coverage limit of one million dollars ($1,000,000) per occurrence and three million dollars ($3,000,000) annual aggregate.

During a student clinical practicum experience at an affiliate site (hospital/clinic) Mitchell Technical College covers the student under their Workmen's Compensation Insurance.

**IMMUNIZATIONS**

All MLT students must receive immunization for Hepatitis B virus. Documentation of previous immunizations or immunizations at Mitchell Technical College must occur. Prior to any participation in a clinical practicum experience, proof of such student's compliance with Hepatitis B immunization is necessary.

A current Tdap, proof of Varicella zoster, flu vaccination and two-step tuberculosis skin test are required upon admission to a clinical site by most affiliates.

**REPORTING OF AN ACCIDENT**

Any occurrence of an injury during the laboratory classes at Mitchell Technical College must be reported to an instructor immediately. An incident form must be completed. Forms are available in the Business Office.

All injuries during working hours at an affiliated site must be reported to a clinical supervisor in the laboratory. Proper medical attention as per the policies of the site must occur. MTC instructors must be notified of such incident within 24 hours of occurrence.

**BACKGROUND CHECKS**

A background check must be successfully completed upon acceptance to the program. A second background check must be completed before leaving for their externship. The extern sites are requesting this process.

# Clinical Practicum Guide, Policies & Agreement

# INTRODUCTION TO CLINICAL PRACTICUM GUIDE AND POLICIES

The clinical practicum portion of the Medical Laboratory Program is essential to fulfill the objectives of the curriculum. The affiliated medical laboratory can be of help in providing the setting needed to enable the student to gain the practical experience necessary to complete his or her preparation to become a qualified medical laboratory technician. The student's activities during clinical practicum include observation, practice and performance of laboratory test procedures, written assignments, keeping of records, online examinations, and evaluations.

The clinical practicum training period is approximately 22 weeks in length for approximately 850 clock hours or less in the event of an approved circumstance where the student has been deemed an entry level technician by the clinical affiliate. The student's schedule and duties are set by the affiliated laboratory. The student is always supervised and is not paid a wage for time spent at the affiliated laboratory. Primary emphasis is placed upon the student's actual performance of laboratory test procedures considered to be of a routine nature in the five major disciplines:

1. Hematology
2. Urinalysis
3. Clinical Chemistry
4. Microbiology-Serology
5. Immunohematology

Student experiences in other areas of laboratory work are at the discretion of the affiliated laboratory. The actual total number of laboratory test procedures performed by the student is not as important as the quality achieved to perform the procedures with the necessary degree of accuracy, precision, and efficiency. The chief concerns during clinical practicum are that the student:

1. Learn to organize a daily workload.
2. Learn to increase technical expertise.
3. Learn to recognize and correct performance errors.
4. Learn to follow a system of quality assurance and control.
5. Learn to work with patients and co-workers.
6. Complete all assignments.

Evaluation of the student's performance and progress is done by laboratory personnel and MTC instructional staff. One person at the affiliated laboratory is designated as the supervisor of the student's clinical practicum and is to be responsible for the scheduling, assignment of duties, and evaluation. Frequently this person is the laboratory supervisor who may delegate this to other laboratory personnel who work with the student. The instructors from MTC communicate with the affiliated laboratory on a scheduled basis to confer with the supervisor and the student and evaluate the student's performance and coordinate the clinical practicum. Contact is also maintained by telephone, email, and mail correspondence.

**MITCHELL TECHNICAL COLLEGE**

# Medical Laboratory Technology Program

## Clinical Practicum

### GENERAL GOALS

After successful completion of the didactic courses in the Medical Laboratory Technician (MLT) Program the student is required to complete an approximately 850 clock hours or less in the event of an approved circumstance where the student has been deemed an entry level technician at appointed clinical affiliate. In addition to adherence to the mission and goals of Mitchell Technical College the MLT clinical practicum goals in general are to provide the student with a clinical setting where the student can under supervision:

1. Obtain a level of technological instruction equal to the latest procedures and instrumentation in a medical laboratory as appropriate for entry level as an MLT.
2. Develop ethical professionalism related to the medical field to include confidentiality.
3. Gain empathy and respect for the people the medical laboratory field serves.
4. Demonstrate responsible actions to include attendance.
5. Accept instruction and constructive criticism willingly.
6. Maintain a friendly atmosphere with co-workers.
7. Practice safety in all respects of the laboratory to include universal precautions.
8. Process specimens properly for each respective department of the laboratory.
9. Perform quality assurance in all procedures and equipment.
10. Demonstrate competency in laboratory computer technology.
11. Pursue additional reference material related to the medical laboratory.
12. Meet all requirements of their clinical practicum as outlined by Mitchell Technical College.

**MITCHELL TECHNICAL COLLEGE**

# Medical Laboratory Technology Program

## Clinical Practicum

### SPECIFIC DEPARTMENT OBJECTIVES

**HEMATOLOGY/HEMOSTASIS**

The student while under supervision will be able to perform accurately the following using safe laboratory procedures and proper laboratory techniques:

- Obtain blood samples for Hematology analysis to include finger puncture and venipuncture.
- Prepare samples for Hematological procedures to include dilutions and staining.
- Use instrumentation to include automated cell counters and coagulation.
- Recognize normal and abnormal results encountered in Hematology and Hemostasis.
- Use quality assurance procedures to include quality control.
- Identify technical errors and apply problem solving techniques.
- Perform preventative maintenance on hematology and coagulation instrumentation.
- Recognize major disease states which correlate with laboratory results.
- State the principle of the procedures used and perform the following tests:
    - Complete Blood Count to include:
        - Hemoglobin
        - Hematocrit
        - Red blood cell count
        - White blood cell count
        - Indices
        - Differential White Count
        - Platelet counts
        - Manual Differential Count identifying normal cells and recognizing abnormal cells.
        - Reticulocyte count
        - Prothrombin Times
        - Activated Partial Thromboplastin Tests
        - Erythrocyte Sedimentation Rate
        - Cell counts on other body fluids

Observation and exposure to other laboratory tests performed in a Hematology and Hemostasis department as appropriate for a particular laboratory. This may include Scattergrams, RDW, screening tests for abnormal Hemoglobin's, specialty stains, eosinophil count, activated clotting time, specific clotting factors, bone marrow smears and others.

**Procedures/Tests**

- Manual Differential with Morphology RBC Morphology, Inclusions, Indices
- WBC Morphology with Differential, Artifacts, Inclusions Manual Cell Counts on Body Fluids
- WBC and Platelet Estimate from Blood Smear Automated WBC, RBC, and Platelet Counts Hematocrit

and Hemoglobin
- Manual Reticulocyte Counts
- Westergren sedimentation Rate
- Special Stains (1 or more of the following)
    - periodic acid-Schiff
    - myeloperoxidase
    - Sudan black
    - esterase
    - nonspecific esterase
    - tartrate-resistant acid
    - phosphatase
    - Prussian blue
- Leukocyte Alkaline Phosphatase
- Stain Partial
- Thromboplastin Time
- Prothrombin Time
- Fibrinogen
- Factor Assays
- Latex FDP Assay
- Latex D-Dimer Assays

**Instruments/Methods**

- Automated Stainers
- Microhematocrit
- Centrifuge
- Automated Cell Counters
- Automated WBC Differential Scattergrams
- Photo-Optical Detection of Fibrin Clot

**MITCHELL TECHNICAL COLLEGE**

# Medical Laboratory Technology Program

## Clinical Practicum

**SPECIFIC DEPARTMENT OBJECTIVES**

**URINALYSIS AND BODY FLUIDS**

Students while under supervision will be able to perform accurately the following using safe laboratory procedures and proper laboratory techniques:

- Prepare samples for Urinalysis/Body Fluid examinations to include preservatives and centrifugation.
- Use Instrumentation in Urinalysis/Body Fluid procedures.
- Recognize normal and abnormal results in Urinalysis/Body Fluid exams.
- Use quality assurance procedures to include quality control.
- Identify technical errors and apply problem-solving techniques.
- Recognize major disease states, which correlate with laboratory results.
- State the principle of the procedure and perform the following tests:
    - Routine urinalysis to include microscopic examination
    - Perform confirmatory urinalysis tests when appropriate
    - Spinal fluid cell count, differential of white cells
    - Occult blood
    - Seminal fluid analysis and/or sperm count
    - Synovial fluid analysis
- Troubleshoot instruments and procedures as needed.
- Perform preventative maintenance on instruments.
- Observation and exposure to other laboratory tests performed in Urinalysis and
- Body Fluid Examinations as appropriate for a particular laboratory.

**Urine, Body Fluids and Stool Analysis**

- Physical, Chemical, and Microscopic Examination of Urine Reducing Substances
- Urine Pregnancy Test
- Cerebrospinal Fluid Cell Count, Differential, and Chemistry Fecal Occult Blood
- Automated Dipstick Reader

**MITCHELL TECHNICAL COLLEGE**

# Medical Laboratory Technology Program

## Clinical Practicum

**SPECIFIC DEPARTMENT OBJECTIVES**

**IMMUNOHEMATOLOGY**

Students while under supervision will be able to perform accurately the following using safe laboratory procedures and proper laboratory techniques:

- Obtain proper blood samples for immunohematology analysis.
- Screen blood donors to include medical history and physical examination.
- Draw blood donors for the hospital blood bank if applicable at site.
- Process donor units to include immunohematology testing.
- Observe autologous and directed donations, therapeutic phlebotomy.
- Observe preparation and storage of blood components.
- Perform a Direct and Indirect antiglobulin technique.
- Determine an ABO and Rh blood type.
- Recognize discrepancies in blood grouping.
- Do the procedure for an antibody screen and antibody identification.
- Perform compatibility testing for crossmatched blood.
- Recognize incompatibility crossmatches and apply problem-solving techniques.
- State Extern site policies for issuing blood, blood components and RhIG.
- Observe transfusion therapy.
- State the procedure for a transfusion reaction.
- Receive and ship blood and blood inventory.
- State the requirements for site blood inventory.
- Follow all quality controls procedures in immunohematology.
- Perform preventative maintenance on blood bank equipment.
- Test procedures for MLT should include:
    - ABO typing
    - Rh typing to include Du
    - Direct and Indirect antiglobulin Antibody screening
    - Antibody identification Compatibility testing Transfusion reaction workup
    - Observation and exposure to all immunohematology tests performed in the department as deemed appropriate by the educational coordinator.

**Immunohematology/Blood Banking**

Components

- Random Donor Platelets Single Donor Platelets Packed RBC's
- Leukocyte Reduced RBC's Fresh Frozen Plasma Cryoprecipitate
- Rho Immune Globulin

Procedures/Tests

- Direct Antihuman Globulin Test Indirect Antihuman Globulin Test
- ABO Blood Group System
- Rh Blood Group System Antibody Screen
- Major Crossmatch
- Antibody Identification Including Multiple Antibodies Phenotyping RBC's
- Prewarming Technique, Elutions
- Reagent Quality Control
- Emergency Blood Release Procedure
- Transfusion Reaction Work Up

**Immunology**

Tests/Methods

- Rapid Plasma Reagin Test
- Mononucleosis Test
- Mycoplasma Antibody
- Streptococcus Antibody Test
- C-Reactive Protein Latex Agglutination

**MITCHELL TECHNICAL COLLEGE**

# Medical Laboratory Technology Program

## Clinical Practicum

### SPECIFIC DEPARTMENT OBJECTIVES

**CLINICAL CHEMISTRY**

Students while under supervision will be able to perform accurately the following using safe laboratory procedures and proper laboratory techniques:

- Obtain proper blood samples for clinical chemistry analysis.
- Obtain arterial blood for blood gases if applicable to clinical site.
- Identify automated chemical analyzers as to their types, components and values each can produce to include immunoassay instrumentation.
- Operate automated clinical instrumentation and perform calibrations and preventative maintenance.
- Use quality assurance procedures to include quality control.
- State the principle of method for each analyte tested in clinical chemistry and immunoassay to include the reagents necessary
- State the reportable units for each analyte.
- Recognize normal and abnormal results for each test.
- Identify technical errors and apply problem-solving techniques.
- Recognize major disease states, which correlate with laboratory results.
- Determine the chemistry profiles used at clinical site and identify test
- Components, and discuss pathophysiological significance of the profiles.

Test procedures for MLT should include:

- Glucose, Glucose Tolerance Test, Hgb A-lc
- Urea nitrogen, Uric acid
- Creatinine, creatinine clearance
- Electrolytes
- Blood gases
- Calcium
- Magnesium
- Cardiac Enzymes, Troponin I or T
- Liver enzymes
- Iron studies
- Therapeutic drug monitoring
- Endocrine studies
- Cholesterol, LDL, HDL, Triglycerides
- Total protein, Albumin, Globulin
- Hormone analysis to include thyroid function tests

Observation and exposure to all clinical chemistry procedures and immunoassays as available and deemed appropriate by the educational supervisors at the clinical site.

**Chemistry**

At least one representative analyte should be run for each methodology under the instrumentation category.

- Total Serum Protein
- Serum Albumin
- Blood Urea Nitrogen Creatinine
- Uric Acid
- Iron or Total Iron-Binding Capacity
- Calcium
- Phosphorus
- Magnesium
- Bilirubin
- Cholesterol, Triglyceride
- High-Density Lipoprotein
- Cholesterol Low-Density Lipoprotein
- Glucose, Hgb A1C
- Lipase Amylase
- Creatine Kinase
- Lactate Dehydrogenase
- Aspartate Aminotransferase
- Alanine Aminotranferase
- Gamma-Glutamyl Transferase
- Lipase
- Amylase
- Ethanol
- Ammonia
- Ion-Selective Electrodes (ISE)
- Electrolytes (Na+, K+, CL-)

**Immunoassay Techniques**

- Transferrin, Serum Iron, TIBC Free T4, Total T4, T3, and TSH
- Prostate Specific Antigen
- Therapeutic Drug Monitoring
- Beta Human Chorionic Gonadotropin

**Osmometry**

- Urine and Serum Osmolality

**Automated Multi-chemistry Analyzer**

**Other**

- Screenings for drugs of abuse

**MITCHELL TECHNICAL COLLEGE**

# Medical Laboratory Technology Program

## Clinical Practicum

### SPECIFIC DEPARTMENT OBJECTIVES

**MICROBIOLOGY**

Students while under supervision will be able to perform accurately the following using safe laboratory procedures and proper laboratory techniques:

- Obtain specimens for culture from desirable body sources and state sources of errors for aerobic and anaerobic culture.
- Identify potential pathogens upon examination of growth from commonly encountered specimens.
- Identify different sterilization techniques and disinfecting.
- Utilize and prepare media.
- Perform and interpret a Gram stain.
- Describe colony morphology for various bacterial growths.
- Prepare stain slides for direct examination.
- Culture, identify and differentiate staphylococci and streptococci.
- Culture and identify Neisseria.
- Culture, identify and differentiate Enterobacteriaceae.
- Culture and identify non-fermentative bacilli, gram-negative coccobacilli, Hemophilus, Gardnerella, Campylobacter.
- Review staining of acid-fast smears and culturing for acid-fast bacilli.
- Observe culture and identification of spore forming bacilli.
- Perform MIC.
- Use problem-solving techniques for troubleshooting and correlation of microscopic, colonial and biochemical characteristics.
- Obtain a blood culture and identify growth-suing instrumentation if available.
- Perform a rapid group A strep antigen test.
- Do a urine colony count.
- Recognize major clinical manifestations of potential pathogens in pure and mixed cultures and correlate with patient information.
- Observe collection of viral specimens and state necessary concerns for transportation.
- Observe collection of Chlamydia specimens and perform immunological identification.
- Culture and identify Candida albicans.
- Observe identification of Cryptococcus neoformans to include India ink.
- Concentrate a fecal sample for parasites.
- Look at and/or prepare a trichrome stain for parasites.
- Identify macroscopically and/or microscopically parasites common to the United States either by laboratory specimens or use of reference material.
- Perform immunological tests for ID of Clostridium difficile.
- Obtain fungal specimens and state necessary precautions for growth and transportation.

**Microbiology**

- Bacteria and Fungi
- Staphylococcus aureus
- Staphylococcus epidermidis
- Other coagulase-negative Staphylococcus species
- Streptococcus viridans
- Beta Streptococcus group A/group B
- Other beta hemolytic Streptococci Enterococcus faecalis/faecium
- Other group D streptococci/enterococci Streptococcus pneumoniae
- Listeria species
- Corynebacterium species
- Bacillus species
- Lactobacillus species p
- Escherichia coli
- E coli 0157:H7
- Klebsiella-Enterobacter-Serratia Proteus-Providencia-Morganella
- Citrobacter species
- Other Enterobacteriaceae Aeromonas species
- Campylobacter jejuni
- Salmonella species S
- Shigella species
- Yersinia enterocolitica
- Pseudomonas aeruginosa
- Stenotrophomonias (Xanthomonas) maltophilia
- Burkholderia (Pseudomonas) cepacia
- Acinetobacter calcoaceticus
- Other nonfermentative gram-negative bacilli
- Pasteurella multocida
- Neisseria gonorrhoeae and meningitides Moraxella catarrhalis Hemophilus influenzae
- Other Hemophilus species Gardnerella vaginalis Legionella pneumophila Actinomyces species
- Bacteroides fragilis/fragilis group Bacteroides
- Prevotella melaninogenica-oralis group
- Clostridium perfringens
- Clostridium difficile
- Fusobacterium species
- Propionibacterium species
- Candida albicans

**Parasitology**

- Entamoeba histolytica and coli
- Giardia lamblia
- Trichomonas vaginalis
- Cryptosporidium species

- Trichuris species
- Plasmodium species
- Taenia species
- Hymenolepsis nana

**Procedures/Tests/Cultures**

- Gram Stain
- Modified Acid-Fast Stain
- Blood Culture - - routine and fungal
- Throat cultures Urine cultures Sputum cultures
- Wound/Abscess cultures Body Fluid Cultures Anaerobic Cultures
- Antimicrobial Susceptibility - - minimum inhibitory concentration and Kirby-Bauer
- Rapid Group A Streptococcus Antigen Tests Yeast Assimilations
- Enzyme Immunoassay Methods
- Stool Microscopic Examination for Fecal Leucocytes Beta Lactamase Detection
- Commercial Bacterial Identification Systems
- Trichrome Stain for Parasites
- Formalin/Ethyl Acetate Concentration for Parasites Giemsa Stain for Parasites

**Instruments**

- Blood culture and bacterial identification

## STUDENT ASSIGNMENT TO A CLINICAL PRACTICUM SITE

Approximately two months prior to the start of the clinical practicum period, each student will be assigned a site by the Program Director. The decisions will be based on the following:

- Needs of students (including marriages, house ownership, children of school age, etc.)
- Grade Point Averages (GPA's). Students are advised that GPA is very important in the placement process. If there are two students applying for the same site, the GPA may be a factor in the final decision.
- Interviews may be conducted at an externship site. It will be the site's decision on the placement of the students at their site. If an interview is not needed, the program director will assign the site based on the needs of the student.

NOTE: Once a clinical practicum assignment is made, it is expected that they will not be changed.

## ACTIVE CLINICAL AFFILIATE SITES

Active affiliate sites will be listed on the Medical Laboratory Technology program page on Mitchell Tech's website (www.mitchelltech.edu). The active sites will be listed under Program Requirements.

## WITHDRAWAL FROM CLINICAL SITE

The clinical practicum site may request MTC to withdraw any MLT student whose conduct or practice will have a detrimental effect on patients, site, personnel, or other students. MTC shall withdraw any such student at the request of the clinical practicum site. Sites shall have the right to refuse acceptance of any student for clinical practicum experience who has previously been discharged for reasons which would make the affiliation undesirable. It will be up to the student to find a new extern site that meets the requirements needed to finish their degree in the event they have been dismissed. This site must be approved by the program director of the MLT program.

## STUDENT SCHEDULES AND ATTENDANCE

The daily work schedule for the student will be determined by each extern site. It will ensure that the student will fulfill approximately 850 clock hours. This schedule may typically be 5 days per week, 40 hours per week. This would require approximately 22 weeks at the extern site. Attendance is stressed. If more than 5 days of absence are documented, a waiver from the Program Director may be needed to complete the program. If the absences are of a medical nature, the program director may need to review the medical evaluations of your attending physician. Students are NOT on the MTC holiday schedule while on clinical practicum. They are on the clinical practicum's holiday schedule. If you do work on a scheduled holiday, you can take an additional number of hours (up to a maximum of 8) and apply them to externship hours required. All absences must be made up.

**MITCHELL TECHNICAL COLLEGE**

# MEDICAL LABORATORY TECHNOLOGY PROGRAM
# OFFICIAL ATTENDANCE RECORD-CLINICAL PRACTICUM

You must clock in and out daily using Trajecsys and your technical supervisor/educational coordinator or program director will approve your hours. This is the official attendance record for your clinical practicum. The goal is to complete approximately 850 clinical hours.

## STUDENT CONDUCT DURING CLINICAL PRACTICUM

All students are expected and required to meet and maintain accepted professional standards of employee conduct. This would include proper, acceptable dress and appearance. The clinical practicum site is responsible for orientation of the students to include policies and procedures applicable to their conduct while on site premises.

Students shall follow site policies of confidentiality with all information or records of the site to include patient, visitors, personnel, or business of the site. The clinical practicum site will document attendance records and disciplinary actions.

The MLT program requirements include successful completion of the above didactic curriculum as outlined in each course syllabi. At the practicum students must complete online comprehensive tests, three sets of worksheets for each area, proficiency sheets signed by the affiliated laboratory educational coordinator (supervisor), a record of hours completed, and an evaluation of each department. The use of program specified procedure checklists, worksheets and required hours ensures that the students' experiences are comparable at each clinical site to develop entry-level competencies.

## SUPERVISION AND SERVICE WORK POLICY

All procedures performed by a student during clinical hours must be done under supervision by an assigned clinical preceptor at the clinical site. Students will not be allowed to perform procedures in the clinical laboratory without direct supervision. This may be a different person on different days or shifts. It is highly suggested that students take part in varying shifts when nearing the end of their clinical experiences. This will help ensure the students' exposure to preventive maintenance practices and their ability to multi-task in all areas of the lab.

Medical Laboratory Technology students are not expected to perform patient and/or reportable work and are not allowed to be substituted for regular employees during a clinical rotation. After demonstrating proficiency, students, **with qualified supervision**, may be permitted to perform procedures. All test results reported by students must be verified by a qualified staff member. A clinical affiliate that employs a current MLT student as a laboratory assistant or phlebotomist will schedule the student for work during non-instructional hours. It is the policy of the Mitchell Technical College to discourage service work during clinical rotations.

Stipends and scholarships toward a student's education do not imply employment and do not allow student responsibility for direct patient and/or reportable work during scheduled educational periods.

## STUDENT EVALUATIONS AT CLINICAL PRACTICUM SITES

Student performance and progress are evaluated by the affiliated laboratory and MTC personnel. MTC instructors from the MLT program shall visit the affiliated laboratory during the student's clinical practicum experience and confer with the laboratory personnel as to the student progress and aid in coordinating the experience. An MTC instructor is continually available to the MLT students and site via telephone, cell phone, or email and a maximum of three clinical visits (minimum of one) for immediate guidance or consultation during the clinical practicum experience. An MTC instructor shall be available, as needed, for conference discussions involving individual students and site representatives.

**Program Graduation Requirement**: Students must earn a grade of C or higher in technical courses during the clinical practicum to graduate.

**MTC courses required during clinical practicum experience:**

| | |
|---|---|
| ML 214 Practical Clinical Hematology/Hemostasis | 5 credits |
| ML 224 Practical Clinical Urinalysis/Body Fluids | 2 credits |
| ML 274 Practical Clinical Immunohematology | 4 credits |
| ML 214 Practical Clinical Microbiology/Serology | 5 credits |
| ML 234 Practical Clinical Chemistry/Immunoassay | 6 credits |

**EVALUATIONS FOR THE ABOVE COURSES ARE:**
25% WORKSHEETS
25% COMPREHENSIVE ONLINE TESTS (4)
50% CLINICAL PRACTICUM EVALUATION FOR SITE

Criteria for worksheets, tests and clinical practicum site evaluations are stated with each identity.

Mitchell Technical College shall award academic credit to each MLT student of the clinical practicum experience.

**MITCHELL TECHNICAL COLLEGE**

# MEDICAL LABORATORY TECHNOLOGY PROGRAM

COMPREHENSIVE CLINICAL PRACTICUM TEST #1

| Questions | Department | Grade |
|---|---|---|
| 40 | HEMATOLOGY/HEMOSTASIS | |
| 20 | URINALYSIS/BODY FLUIDS | |
| 40 | CLINICAL CHEMISTRY | |
| 40 | MICROBIOLOGY | |
| 40 | IMMUNOLOGY/IMMUNOHEMATOLOGY | |
| 180 | TOTAL | |

ALL EXTERN TESTS ARE ONLINE. THE RESULTS WILL BE SENT ELECTRONICALLY FOR GRADING. THIS EXAM IS YOURS TO USE FOR BOARD CERTIFICATION READINESS.

MITCHELL TECHNICAL COLLEGE
MEDICAL LABORATORY TECHNOLOGY PROGRAM
1800 EAST SPRUCE STREET
MITCHELL, SD 57301

# Mitchell Technical College Medical Laboratory Technology Program
## Worksheets

**Subject matter for worksheets—Three (3) units each.**

- Hematology/Hemostasis
- Clinical chemistry
- Urinalysis/Body fluids
- Microbiology
- Immunology/Immunohematology

**Grading criteria – 25% of Clinical Practicum grade per department**

A- 90% - 100%
B- 89% - 80%
C- 79% - 70%
D- 69% – 60%
F - Less than 60%

An “A” worksheet consists of:
All information complete
All facts accurate, no omissions
Correctly written using phrases and equations

A “B” worksheet consists of:
Almost all information is complete. Most facts accurate
Correctly written using phrases and equations

A “C” worksheet consists of:
Most information complete. Most facts accurate
Correctly written using phrases and equations

A “D” worksheet consists of:
Many items of information are incomplete. Many facts inaccurate
Poorly written and difficult to read

A “F” worksheet consists of:
Most items are incomplete. Most facts inaccurate
Poorly written.
Arrival after due date for clinical practicum exercises

MITCHELL TECHNICAL COLLEGE

**MEDICAL LABORATORY TECHNOLOGY PROGRAM**

Clinical Practicum Evaluation Grading Criteria for a MLT Student

This evaluation form is to be filled out by the clinical faculty or assigned technologist responsible for the student during the period of evaluation. This appraisal form will be used to evaluate the student's performance at the end of a clinical rotation. The end of the rotation evaluation will become part of the student's permanent record and grade.

Instructions to Evaluators:

1. Please be honest in rating the characteristics of the student.
2. Base your judgment on behavior you feel is characteristic of the student during the period of evaluation rather than on an isolated incident.
3. Fill in the appropriated box for each behavior/performance electronically on Trajecsys.
4. Use the comment space for information regarding the student including praise or any problems you may have encountered.
5. If the description of the criteria does not apply, please comment or mark N/A

IMPORTANT: Please contact Mitchell Technical College, Medical Laboratory Technician Program, if you suspect or know of student behavior not appropriate in the clinical laboratory. 1-800-952-0042 Ext. 7106 or 605-995-7106.

# PERFORMANCE EVALUATIONS – Completed by Laboratory Staff

## Clinical Practicum Evaluation

**Mitchell Technical College Medical Laboratory Technology**

Student _____Evaluation Month_____

Evaluating Staff_____ Department _____

Rank the student on a scale of 1-4 by indicating the response that best describes the student's performance at this point in their clinical training.
Use NA if the student has not participated in the evaluating item or is not an option at this facility.

**Any score less than a 3, the reviewer must provide comments.**

1. Unsatisfactory performance.
2. Development - Improvement is needed to meet clinical objectives.
3. Proficient - Meets clinical standards and objectives.
4. Mastery – Exceptional performance in meeting established standards and objectives**.**

| Clinical Evaluation | 1 | 2 | 3 | 4 | NA |
|---|---|---|---|---|---|
| 1. Demonstrates physiological knowledge of the urinary system, exudates, transudates, and various body fluid and semen | | | | | |
| 2. Identifies patients and specimens properly, accurately processes specimens for departmental urinalysis, | | | | | |
| 3. Demonstrates knowledge regarding collection and measurement of 24 hr. urine specimens, preserves an adequate amount for aliquot for assay. | | | | | |
| 4. Performs physical, chemical, and microscopic analysis of urine including confirmatory testing. | | | | | |
| 5. Performs quality control properly, including documentation of acceptable values and ability to react to unacceptable values. | | | | | |
| 6. Demonstrates knowledge of normal reference ranges of tests performed, recognizing incorrect results. | | | | | |
| 7. Performs analyses on body fluids other than urine (CSF, synovial fluid, semen, etc.) as well as other testing offered by the lab such as occult blood. | | | | | |
| 8. Follows test procedures using procedural manuals as necessary | | | | | |
| 9. Reports laboratory results accurately into the lab computers. | | | | | |
| 10. Follows laboratory safety protocols and maintains a clean work area. | | | | | |
| 11. Student can correlate test results with clinical significance and patient history. | | | | | |
| **Laboratory Professionalism – Affective Domain** | **1** | **2** | **3** | **4** | **NA** |
| 12. Conducts themselves in an ethical and professional manner | | | | | |
| 13. Possesses good communication skills and maintains good interpersonal relationships with clinical staff | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| 14. Projects an image of professionalism including appearance, dress, attitude, and confidence | | | | | |
| 15. Works independently and with others under time constraints | | | | | |
| 16. Strives to follow all safety guidelines in the laboratory. | | | | | |
| 17. Successfully handles stressful situations such as emergency and STAT laboratory orders | | | | | |
| 18. Responds positively to criticism and challenges | | | | | |
| 19. Seeks assistance or advice from the proper authority | | | | | |
| 20. Keeps laboratory personnel informed and takes appropriate actions | | | | | |
| 21. Strives to provide good customer service in the healthcare arena | | | | | |
| 22. Maintains confidentiality of patient information | | | | | |
| 23. Maintains satisfactory attendance | | | | | |
| 24. Demonstrates good judgement and decision making in the clinical setting | | | | | |
| | | | | | |
| **SCORE** | | | | | |

Student Strengths:
Areas of further growth and development:
Other comments:
Student Comments:
Evaluating technologist signature and Date

_____

# Clinical Practicum Grading Scale

1 – Unsatisfactory performance
2 – Developing – Improvement is needed to meet clinical objectives
3 – Proficient – Meets clinical standards and objectives
4 – Exceptional performance in meeting established standards and objectives

**Average score will meet the following grade:**

**A = 3.5-4**
**Point breakdown**

3.5- 90
3.6-92
3.7- 94
3.8 -96
3.9 -98
4 - 100

**B = 2.5-3.49**
**Point breakdown**

3.49- 89
3.3- 88
3.2 -87
3.1- 86
3.0- 85
2.9 -84
2.8 -83
2.7- 82
2.6- 81
2.5 -80

**C = 1.5- 2.49**
**Point breakdown**

2.49 - 80
2.4 - 80
2.3 -78
2.2 -77
2.1 -76
2.0 -75

**D= 1.49-1**

**Point breakdown**

1.9 -74
1.8 -73
1.7 -72
1.6 -71
1.5 -70
1.49 -69
1.3 -68
1.2 -67
1.3- 63
1.2 -62
1.1- 61
1.0 -60

**F below 1**

# PROCEDURE CHECKLIST

**Objective:** After observation of techniques and demonstration of analysis and/or methods, the student will be able to successfully execute the following tasks in a job setting after the usual employee orientation as an entry level Medical Laboratory Technician (MLT).

**Completion Date:** After a student has completed the final or full rotation in a department.

**Departments with procedure checklists:**
Hematology/Phlebotomy
Immunohematology (Blood Banking)
Clinical Chemistry/Immunoassay
Microbiology (Bacteriology, Parasitology, Mycology, Virology)
Urinalysis/Body Fluids
Serology Instrumentation

**Form completion:**
*Proficiency yes/no:* Fill in yes if student can perform the tests as would an entry level technician. If after clinical practicum the student is still unable to perform the test or has not been exposed to the procedures, then answer no.

*Has observed/working knowledge*: Check this column if student is not proficient in a procedure but has observed the techniques at their extern site BUT is able to exhibit knowledge of the test.

*No experience/working knowledge:* Check this column if student has not performed or observed this procedure BUT is able to discuss the test about its use, techniques and clinical application.

*Comments:* Use for explanation of student ability, number of tests performed, details of procedure at your clinical site, and other information regarding student performance of tests.

# PROCEDURE CHECKLIST
## Instrumentation

The student after observation of technique and demonstration of analysis or method will be able to successfully execute the following tasks in a job as an entry level Medical Laboratory Technician:

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| Laboratory Computer System | | | | | |
| Microscopes | | | | | |
| Centrifuges | | | | | |
| Automated pipettes | | | | | |
| HEMATOLOGY: | | | | | |
| Automated cell counter | | | | | |
| Automated WBC differential | | | | | |
| Scattergrams | | | | | |
| Microhematocrit centrifuge | | | | | |
| Automated Stainers | | | | | |
| Automated coagulation | | | | | |
| CHEMISTRY: | | | | | |
| End point spectrophotometry | | | | | |
| Kinetic spectrophotometry | | | | | |
| Enzyme immunoassay | | | | | |
| Fluorometry | | | | | |
| Nephelometry | | | | | |
| Osmometry | | | | | |
| Automated multichemistry analyzer | | | | | |
| Ion selective electrodes | | | | | |
| URINALYSIS: | | | | | |
| Automated dipstick reader | | | | | |
| Osmometry | | | | | |
| MICROBIOLOGY: | | | | | |
| Blood culture automation | | | | | |
| Bacterial identification | | | | | |
| IMMUNOHEMATOLGY: | | | | | |
| Automated cell washers | | | | | |
| Gel system for typing and/or antibody screening | | | | | |
| Immunohematology centrifuges | | | | | |
| Blood Bank temp. control | | | | | |

# PROCEDURE CHECKLIST
## Urinalysis/Body Fluids

The student after observation of technique and demonstration of analysis or method will be able to successfully execute the following tasks in a job setting after usual employee orientation as an entry level Medical Laboratory Technician:

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| Physical exam for urinalysis | | | | | |
| Reagent strips (chemistry exam) for urinalysis | | | | | |
| Specific gravity – refractometer | | | | | |
| Acetest | | | | | |
| Protein (SSA) acid test | | | | | |
| Icotest | | | | | |
| Urine Osmolarity | | | | | |
| UA micro exam for cells | | | | | |
| UA micro exam for crystals | | | | | |
| UA micro exam for casts | | | | | |
| UA micro exam for “other” | | | | | |
| Fecal specimen for WBCs | | | | | |
| Fecal specimen Occult blood | | | | | |
| Synovial fluid exam | | | | | |
| Seminal fluid analysis | | | | | |
| Sperm count | | | | | |
| Nasal smear for eosinophils | | | | | |
| Spinal fluid hematology tests | | | | | |
| Spinal fluid specimen for chem. | | | | | |
| Spinal fluid specimen for micro. | | | | | |
| Urine pregnancy test | | | | | |
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# PROCEDURE CHECKLIST

## Hematology

The student after observation of technique and demonstration of analysis or method will be able to successfully execute the following tasks in a job setting after usual employee orientation as an entry level Medical Laboratory Technician:

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| Venipuncture | | | | | |
| Capillary stick | | | | | |
| Arterial draw | | | | | |
| CBC | | | | | |
| Scattergrams | | | | | |
| Histograms | | | | | |
| Manual diff with morphology | | | | | |
| Hemoglobin | | | | | |
| Hematocrit | | | | | |
| White cell count/differential | | | | | |
| Indices | | | | | |
| Erythrocyte sedimentation rate | | | | | |
| Reticulocyte count | | | | | |
| Prothrombin time | | | | | |
| Partial Thromboplastin time – APTT | | | | | |
| Fibrinogen assay | | | | | |
| FDP slide test / D-dimer test | | | | | |
| Malaria smear | | | | | |
| Bone marrow preparation | | | | | |
| Osmotic fragility | | | | | |
| Special stains | | | | | |
| Others: | | | | | |
| Others: | | | | | |
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# PROCEDURE CHECKLIST

## Microbiology

The student after observation of technique and demonstration of analysis or method will be able to successfully execute the following tasks in a job as an entry level Medical Laboratory Technician:

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| Sample Collection | | | | | |
| Inoculate solid media | | | | | |
| Inoculate liquid media | | | | | |
| Gram stain | | | | | |
| Acid-fast stain | | | | | |
| India ink stain | | | | | |
| Trichrome stain | | | | | |
| Sputum culture | | | | | |
| Throat culture | | | | | |
| Urine culture | | | | | |
| Wound / abscess culture | | | | | |
| Blood culture | | | | | |
| Genital culture | | | | | |
| Identify & differentiate Staph | | | | | |
| Identify & differentiate Strept | | | | | |
| Identify & differentiate Neisseria | | | | | |
| Identify & differentiate Hemophilus | | | | | |
| Identify & differentiate gram negative bacillus | | | | | |
| Beta lactamase detection | | | | | |
| Identify & differentiate Campylobacter | | | | | |
| Urine colony counts | | | | | |
| Fungal culture | | | | | |
| Identify common fungi | | | | | |
| Identify common yeasts | | | | | |
| KOH slide preparation | | | | | |
| Serotyping | | | | | |

# PROCEDURE CHECKLIST

## Microbiology

The student after observation of technique and demonstration of analysis or method will be able to successfully execute the following tasks in a job as an entry level Medical Laboratory Technician:

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| Process a stool sample for O&P | | | | | |
| Identify common parasites | | | | | |
| Trichrome/Giemsa stains for parasites | | | | | |
| Process specimen for mycobacterium culture | | | | | |
| Automated antibody susceptibility for MICs | | | | | |
| Kirby Bauer Ab. susceptibility | | | | | |
| Wright stain for Protozoa ID | | | | | |
| Prepare virology specimen for transport to reference lab | | | | | |
| Subculture stock cultures | | | | | |
| Quality control of media and procedures | | | | | |
| Others: | | | | | |
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# PROCEDURE CHECKLIST

## Chemistry/Immunoassay

The student after observation of technique and demonstration of analysis or method will be able to successfully execute the following tasks in a job as an entry level Medical Laboratory Technician:

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| Comprehensive metabolic test panel | | | | | |
| Metabolic test panel | | | | | |
| Electrolytes (Na, K, Cl, $CO_2$, Anion gap) | | | | | |
| Electrolytes (Na, K, Cl) | | | | | |
| Lipid panel (Chol, Trig, HDL) | | | | | |
| Liver panel (AST, ALT, Albumin Total & Direct bilirubin) | | | | | |
| Glucose | | | | | |
| GTT Glucose tolerance test | | | | | |
| 1 or 2 hr. glucose tolerance | | | | | |
| Hbg A1c (Glycated Hgb) | | | | | |
| Urea (BUN) | | | | | |
| Creatinine | | | | | |
| Creatinine clearance | | | | | |
| Uric acid | | | | | |
| Total Cholesterol | | | | | |
| HDL / LDL lipoprotein | | | | | |
| Triglycerides | | | | | |
| Total protein | | | | | |
| Albumin | | | | | |
| Total bilirubin | | | | | |
| Direct bilirubin | | | | | |
| AST (SGOT) | | | | | |
| ALT (SGPT) | | | | | |
| GGT | | | | | |
| Lipase | | | | | |
| Ammonia | | | | | |
| Total CPK (CK) | | | | | |
| Amylase | | | | | |

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| CK-MB band | | | | | |
| Troponin | | | | | |
| Microalbumin | | | | | |
| Total LDH (LD) | | | | | |
| Total calcium | | | | | |
| Ionized calcium | | | | | |
| Magnesium | | | | | |
| Phosphorus | | | | | |
| Alkaline Phosphate | | | | | |
| Lactic acid | | | | | |
| PSA | | | | | |
| Serum iron | | | | | |
| TIBC | | | | | |
| Ferritin | | | | | |
| Transferrin | | | | | |
| Vitamin B 12 | | | | | |
| Blood gases | | | | | |
| TSH | | | | | |
| Free Thyroxine (FT4) | | | | | |
| Beta HCG | | | | | |
| Catecholamines | | | | | |
| Cortisol | | | | | |
| Lithium | | | | | |
| Acetaminophen | | | | | |
| Acetylsalicylic acid – aspirin | | | | | |
| Gentamicin | | | | | |
| Tobramycin | | | | | |
| Digoxin | | | | | |
| Carbamazepine | | | | | |
| Phenytoin | | | | | |
| Valproic Acid | | | | | |
| Theophylline | | | | | |
| Osmolality (serum/urine) | | | | | |
| Others: | | | | | |
| | | | | | |
| | | | | | |

# PROCEDURE CHECKLIST

## Serology

The student after observation of technique and demonstration of analysis or method will be able to successfully execute the following tasks in a job as an entry level Medical Laboratory Technician:

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| RPR/VDRL | | | | | |
| Monotest | | | | | |
| C-reactive protein (latex) | | | | | |
| C-reactive protein (immunoassay) | | | | | |
| Rubella | | | | | |
| Rapid Strept screen | | | | | |
| RA factor | | | | | |
| ANA/FANA | | | | | |
| Influenza A | | | | | |
| Influenza B | | | | | |
| Rotavirus | | | | | |
| HIV | | | | | |
| Hepatitis A antibody | | | | | |
| Hepatitis B antibody | | | | | |
| HBsAb | | | | | |
| HCV | | | | | |
| Giardia | | | | | |
| RSV | | | | | |
| Clostridium difficile | | | | | |
| Helicobacter pylori | | | | | |
| Beta - HCG urine | | | | | |
| Beta - HCG serum | | | | | |
| PKU collections | | | | | |
| Covid 19 testing | | | | | |
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# PROCEDURE CHECKLIST

## Immunohematology

The student after observation of technique and demonstration of analysis or method will be able to successfully execute the following tasks in a job as an entry level Medical Laboratory Technician:

| TEST | PROFICIENT YES/NO | HAS OBSERVED/ Working Knowledge | NO EXPERIENCE/ Working knowledge | COMMENT | TECH/ DATE |
|---|---|---|---|---|---|
| Prepare a 2-5% cell suspension | | | | | |
| Read & grade agglutination | | | | | |
| Read & grade hemolysis | | | | | |
| ABO grouping | | | | | |
| $RH_o$ (D) typing | | | | | |
| Weak D (Du) typing | | | | | |
| Other Rh group typing | | | | | |
| Solve ABO discrepancies | | | | | |
| Direct Coombs (DAT) | | | | | |
| Antibody screening | | | | | |
| Antibody identification including multiple antibodies | | | | | |
| Compatibility testing | | | | | |
| Blood component selection | | | | | |
| Prewarming techniques) | | | | | |
| Elutions | | | | | |
| Issuance of blood & components | | | | | |
| Emergency blood release procedure | | | | | |
| Platelet processing & selection for patients | | | | | |
| Pooling platelets | | | | | |
| Thawing/pooling cryoprecipitate | | | | | |
| Selecting/thawing FFP | | | | | |
| Transfusion observation | | | | | |
| Transfusion reactions workup | | | | | |
| Cord blood workup | | | | | |
| RhIG (RhoGam) processing | | | | | |
| Donor selection | | | | | |
| Donor/therapeutic phlebotomy | | | | | |
| Processing donor components | | | | | |
| Quality assurance Bld. Bank equipment & reagents | | | | | |
| Other: | | | | | |

# SAMPLE
# MEDICAL LABORATORY TECHNOLOGY PROGRAM AGREEMENT

This Agreement is made and entered into this first day of _____, by and between _____ (Hospital), of _____, South Dakota, and Mitchell Technical College, of Mitchell, South Dakota (College).

**WITNESSETH:**
WHEREAS, College offers a program in Medical Laboratory Technician for qualified students preparing for Medical Laboratory Technician (MLT) careers.

WHEREAS, College desires to provide its Medical Laboratory Technician Students with a clinical practicum experience; and

WHEREAS, Hospital operates an acute care hospital, own laboratory facilities, conducts medical laboratory functions and employs trained and qualified laboratory personnel; and

WHEREAS, Hospital and College recognize it is imperative and necessary for the proper education of students enrolled in the MLT Program to receive clinical experience and instruction; and

WHEREAS, it is in the best interests of Hospital to foster and encourage training and education of medical laboratory technicians to ensure an adequate supply of such trained professionals to meet patient needs; and

WHEREAS, College and Hospital desire to cooperate in the education of Medical Laboratory Technician students.

NOW, THEREFORE, in consideration of the mutual covenants, promises and provisions of this agreement and in consideration of the above and foregoing, it is hereby

AGREED by and between College and Hospital as follows:

**A. RESPONSIBILITIES OF HOSPITAL**

1. Hospital hereby agrees to accept students at College that are enrolled in the Medical Laboratory Technology program as hereinabove mentioned, for participation in a MLT practicum experience. Such clinical practicum experience shall include actual participation in laboratory testing and clinical instruction in areas relating to medical laboratory procedures. Nothing in this Agreement shall preclude Hospital from accepting students from any other university, college or technical colleges for clinical practicum experience in medical laboratory technology or any other area. Students shall qualify for participation in the clinical practicum experience at Hospital upon successful

completion of the didactic portion of the MLT curriculum offered and required by college prior to enrollment in clinical practicum experience, and by providing to Hospital proof of adequate health insurance coverage.

2. The Hospital shall allow College's MLT students to enter the premises of Hospital for the purposes of the clinical practicum experience at such times that are mutually agreed upon by College and Hospital.

3. Hospital shall provide adequate physical resources and equipment for the purposes of the clinical practicum experience, including conference facilities, workroom space and reference materials. Provided, however, that such availability does not interfere with the regular operations and needs of Hospital.
4. Hospital shall provide competent and qualified instructors for the purposes of this Agreement. Hospitals, with consultation and assistance from College, shall assume full responsibility for planning and executing the clinical practicum experience, including overall implementation, administration and content. Hospital shall have the right to accept or refuse any MLT student's participation in said clinical practicum experience.
5. Hospital agrees to orient the MLT students to Hospital, including its policies and procedures applicable to their conduct while on Hospital's premises.
6. Hospital shall have sole authority and control over all aspects of laboratory work and patient care, including those activities wherein MLT students may be exposed to or interrelate with Hospital's patients.
7. Hospital shall permit access to medical records of selected patients as required to carry out the clinical practicum experience.
8. Hospital and its personnel shall follow existing policies regarding confidentiality and other information or records of college, including information and records of its students and employees.
9. Hospital shall allow MLT students to utilize the library and other resource materials whenever these facilities are open for normal hospital purposes and not otherwise in use.
10. Hospital agrees to provide emergency health care to the MLT students, with college and/or the MLT students bearing the cost of the same.
11. Hospital shall maintain attendance records and documentation of disciplinary actions for a reasonable amount of time and submit the same to college upon request thereof.

**B. RESPONSIBILITIES OF COLLEGE**

1. The College shall be responsible for maintenance of all records and reports regarding the MLT students' clinical practicum experience. College shall be responsible for establishing criteria required for proper and continued student performance in the medical laboratory program and maintaining proper records thereof.
2. College shall be responsible for ensuring that MLT students in the clinical practicum experience and shall have the sole right to initially accept or refuse any MLT student's participation in said program, except to the extent that such right of acceptance or refusal conflicts with Hospital's right to accept or refuse such students for participation

in clinical practicum experience.

3. College shall be responsible for ensuring that MLT students registered for the clinical practicum experience have completed the required courses prior to commencing the clinical practicum experience, including proper education to fully and adequately demonstrate adequate knowledge of medical laboratory technology, patient care and medical laboratory safety procedures.
4. The hospitalization and medical care for MLT students participating in the clinical practicum experience shall be the individual responsibility of such students. College warrants that all MLT students have been tested for working under supervision for the work that is required under the clinical practicum experience. College further warrants that all such MLT students are immunized for Hepatitis B. College shall provide to Hospital, prior to any individual student participating in the clinical practicum experience, proof of such student's compliance with the Hepatitis B immunization. College shall require students to comply with all of the hospital's health policies.
5. College, as well as its employees and students, including the MLT students in the clinical practicum experience, shall maintain the confidence of any personal, medical or other information relevant to the patients, visitors, personnel, or business of Hospital. The college agrees to appraise its employees and students of the confidential nature of all patient and medical information.
6. MLT students shall be subject to the rules, regulations and policies of Hospital. College shall assume full responsibility for its MLT students' full compliance with such rules, regulations and policies insofar as they pertain to activities on Hospital's premises.
7. MLT students shall conform to a dress code that is acceptable to the Hospital.
8. The College shall provide to Hospital, prior to or during a MLT student's affiliation, pertinent and appropriate information necessary to perform the provisions of this Agreement.
9. College warrants that College and its MLT students participating in the clinical practicum experience are covered under a group or individual professional liability insurance policy carried out by either College or its students. Such professional liability insurance coverage shall provide minimum coverage limits of One Million Dollars ($1,000,000.00) per occurrence and Three Million Dollars ($3,000,000.00) annual aggregate. Prior to the commencement of the clinical practicum experience, College shall provide to Hospital copies of certificates of such insurance for College and each MLT student that is participating in the clinical practicum experience and, upon request, copies of the insurance policies.
10. MLT students shall be responsible for all personal expenses while participating in the clinical practicum experience, including transportation, meals and lodging. It is understood that MLT students may utilize Hospital's cafeteria facilities and may purchase meals at the same cost to Hospital's employees.
11. College shall appoint and make available an instructor who shall be continually available to the MLT students via telephone, and a maximum of three (3) visits per six (6) month program, for immediate guidance or consultation during the clinical practicum experience. Such instructor shall further be available, as needed, for conference discussions involving individual MLT students and a Hospital representative. At the

minimum, there shall be one formal meeting each year between a College representative and Hospital representative to ensure a high quality clinical practicum experience.

12. College shall award academic credit to each MLT student for the clinical practicum experience, as set forth in the College school catalog.

**C. MUTUAL RESPONSIBILITIES**

1. College shall assign, and Hospital shall accept MLT students for clinical practicum experience without discrimination as to laboratory assignment or use of Hospital's facilities. College shall assign and Hospital shall accept such MLT students without discrimination as to faith, national origin, color, race, sex, age, creed, marital status or handicap.
2. Hospital may request College to withdraw any MLT student whose conduct or practice will have a detrimental effect on patients, Hospital, personnel or other MLT students. College shall withdraw any such MLT student at the request of Hospital. The hospital shall reserve the right to refuse acceptance for clinical practicum experience any MLT student who previously has been discharged for reasons which would make the affiliation undesirable.
3. College and Hospital agree to appoint a representative from their respective facility for purposed of maintaining on-going, open, communications and for scheduling and attending meetings to ensure understanding of the roles and expectations of both institutions in fulfilling the terms of this Agreement. The point of contact for each facility is:

   Hospital: _____ *Laboratory Director*

   College: *Lynne M. Smith, MEd. MT (ASCP) Program Director*
4. Neither College, its faculty, nor the MLT students shall be entitled to, nor receive, compensation of any kind from the Hospital in connection with the clinical practicum experience.

**D. OTHER PROVISIONS**

1. Term. This Agreement shall become effective _____,_____ . The term of this Agreement is for a period of one (1) year, and it will be renewed automatically under the terms hereof for subsequent one (1) year periods unless either party gives the other party at least sixty (60) days prior written notice of intent to terminate the Agreement. Notwithstanding the foregoing, either party may terminate this Agreement, with or without cause, by providing sixty (60) days prior written notice to the other party of intent to terminate. If Hospital terminates Agreement, it will permit the then current MLT students to complete their clinical practicum experience.
2. Number of Students. The number of MLT students participating in the clinical practicum experience at any given time shall be limited to (_____).

3. Working Hours. Individual MLT students participating in the clinical practicum experience shall be given an average of forty (40) hours per week to spend in clinical experiences. Hospital shall submit to college a student clinical rotation schedule which will include hours, days off and holidays.

4. Insurance. For the purposes of this Agreement, College and Hospital agree that MLT students are not employees of Hospital and, as such, are not eligible for worker's compensation coverage by Hospital while on the premises of Hospital or involved in any procedure or clinical practicum experience. The College agrees to carry such accident and personal injury liability insurance covering MLT students as may be require or is acceptable to Hospital, and College shall provide to Hospital the necessary certificates as evidence of such insurance. During and after term of this Agreement, College further agrees to indemnify and hold Hospital harmless of any and all damages to person or property and any claims, liabilities, cost or expense (including attorney's fees and medical treatment expenses), resulting from injuries, accidents or other occurrences affecting MLT student during or as a result of the clinical practicum experience.

5. Indemnity. College hereby expressly agrees to indemnify and hold Hospital harmless from all damages to persons or property or any other claims, liabilities, cost or expenses (including attorney's fees), resulting from the acts or omissions, including default or negligence, of college and its employees, students (including the MLT students, against principals, agents, successors, or assigns). The college shall further indemnify Hospital for any and all damages, costs or expenses (including attorney's fees), resulting from any claims or causes of action brought by College's employees or students, including its MLT students, against Hospital. Hospital hereby expressly agrees to indemnify and hold College harmless from all damages to persons or property or any other claims, liabilities, costs or expenses (including attorney's fees), resulting from the acts or omissions, including default or negligence, of Hospital and its employees, principals, agents, successors or assigns.

6. Non-Assignment. No assignment of this Agreement or the rights and obligations there under shall be valid without the specific written consent of both parties hereto.

7. Waiver/Breach. The waiver by either party of a breach or violation of any provision of this Agreement shall not operate as or be construed to be a waiver of any subsequent breach of the same or other provision hereof.

8. Joint Preparation. This Agreement shall be deemed to have been prepared jointly by the parties hereto and any uncertainty or ambiguity shall not be interpreted more strongly against either of the parties.

9. Governing Law. This Agreement shall be deemed to have been entered into in the State of South Dakota and all duties, obligations and rights there under shall be governed by

the laws of the State of South Dakota.

10. Entire Agreement. This Agreement constitutes the entire agreement between the parties with respect to its subject matter. It supersedes any prior agreement or understanding between them and it may not be modified or amended except by a writing executed by both parties.

MITCHELL TECHNICAL COLLEGE

By: _____ Its: President

By: _____ Its: Program Director

By: _____ Date: _____

# Graduation Requirements

# MLT GRADUATION REQUIREMENTS

Students in the MLT Program must meet all requirements for graduation as outlined in the Mitchell Technical College Catalog and Student Handbook.

In addition, the students must receive a "C" or better in technical didactic courses on MTC campus as well as receive a grade of "C" or better for Clinical Practicum courses.

Didactic courses to include:

- ML 104 Medical Laboratory Fundamentals
- ML 105 Instrumentation
- HS 101 Medical Terminology
- HS 103 Anatomy/Physiology
- ML 111 Hemostasis
- ML 112 Hematology
- ML 121 Urinalysis/Body Fluids
- ML 144 Intro to Laboratory Chemistry
- ML 171 Immunology/Serology
- ML 240 Microbiology
- ML 230 Clinical Chemistry
- ML 272 Immunohematology/Blood Banking

Clinical Practicum Courses to include:

- ML 214 Practical Clinical Hematology
- ML 224 Practical Clinical Urinalysis/Body Fluids
- ML 244 Practical Clinical Microbiology
- ML 274 Practical Clinical Immunohematology
- ML 234 Practical Clinical Chemistry/Immunoassay

Sixteen credits of general education courses are required to obtain the AAS degree. The sixteen credits must include the following:

Mathematical Reasoning
Fundamentals of Speech
Social Science Elective
Behavioral Science Elective
English Composition
Student Success (1 credit)

All requirements for Clinical Practicum (Externship) must be met to include the completed documentation of Proficiency Checklists and Clinical Practicum Evaluations

# Operational Policies & Procedures

# Operational Policies & Procedures

The Mitchell Technical College Catalog and Student Handbook contains important policies and procedures that affect students and employees. The Catalog and Student Handbook is published annually on the MTC website; past catalogs are archived on the website as well.

**STUDENT RECORDS**

The Family Education Rights and Privacy Act of 1974 protects the privacy of students' educational records. The statute governs access to records maintained by educational institutions and the release of educational information. The College is in compliance with the Family Educational Rights and Privacy Act of 1974. Compliance procedures are further defined in the Catalog and Student Handbook.

**ACADEMIC ADVISING**

Each student at Mitchell Technical College will be assigned an academic advisor (usually a faculty member from the student's program). Academic advisors provide students with the needed connection to the various campus services. In addition, academic advisors will assist students in course selection during the registration process to ensure timely program completion. Students are ultimately responsible for taking and successfully completing all required coursework; however, advisors provide helpful guidance and support for making good academic decisions. Program requirements and course information can be accessed via the student's MyTech account.

Advisors meet with their advisees at least once per semester and are encouraged to monitor the student's grades and attendance. The advisor will maintain confidentiality with respect to the student's personal and academic information. They are also committed to treating all students with fairness, objectivity, and impartiality.

**WITHDRAWAL FROM SCHOOL**

A student may withdraw from a course or from all courses. Partial refunds will be given for courses withdrawn according to the refund scheduled published in the catalog. Students receiving Title IV Financial Aid must complete exit counseling to ensure receipt of this refund discount. Administrative withdrawals are initiated by Mitchell Tech personnel due to a student's lack of attendance for on-campus courses and non-activity for online courses. Students receive all failing grades from administrative withdrawals and no refund.

More information can be found in the Catalog and Student Handbook on the MTC website.

**STUDENT DISCRIMINATION GRIEVANCE POLICY AND PROCEDURES MTC 1046**

## I. POLICY

It is the policy of Mitchell Technical College to provide a learning and working environment free from discrimination. To that end, Mitchell Technical College requests students and employees to assist the College in identifying barriers to a discrimination-free learning and working environment. The following grievance procedure is provided as an avenue for the processing of complaints toward the prompt, equitable, and appropriate elimination of unlawful discrimination from the learning and working environment.

## II. DEFINITIONS

A. Grievance: a complaint alleging a violation of any policy, procedure, or practice which would be prohibited by Title IX, Section 504, and other federal and state civil rights laws, rules, and regulations. Complaints of other natures should be pursued under Policy MTC 1045: Student Complaints and Appeals.

B. Title IX: of the Education Amendments of 1972, the 1975, and 1980 implementing regulations, and any memoranda, directives, guidelines, and subsequent legislation or regulation that may be issued

C. Section 504: of the Rehabilitation Act of 1973.

D. Federal and State Civil Rights Laws, Rules, and Regulations: 1964 Civil Rights Act, Title VI, Title VII as amended, Title IX, Age Discrimination Act of 1967 and 1975 as amended, Equal Pay Act of 1963, Section 504, the Constitution of South Dakota, and implementing federal and state rules and regulations.

E. Grievant(s): a student, parent, or guardian who submits a grievance

F. Mitchell Technical College, 1800 E. Spruce, Mitchell, South Dakota 57301

G. Title IX or Title IX/Section 504 Coordinator: the employee designated to coordinate the College's efforts to comply with equity regulations and facilitate processing of complaints (hereafter Coordinator). NOTE: The College may authorize others to conduct investigations of complaints.

H. Day: a working day; the calculation of days in grievance processing shall exclude Saturdays, Sundays, and school holidays

## III. BASIC PROCEDURAL RIGHTS (Applicable to all levels of the grievance process)

A. The Title IX (or Title IX/Section 504) Coordinator (or authorized individual) shall receive complaints, actively and independently investigate the merit of complaints and assist the parties in prompt and equitable resolution of complaints. The Coordinator may be utilized as a resource by any party at any level of this procedure.

B. This procedure does not deny the right of the grievant to file formal complaints with other state and federal agencies (South Dakota Human Rights Commission or the United States Department of Education Office of Civil Rights) or to seek private counsel for complaints alleging discrimination.

C. In investigation of sexual harassment or sexual intimidation, it is recommended that the grievant be accompanied by a friend, parent, or advisor of their own choosing for support during any part of the process.

D. Retaliation against any person filing a grievance or any person participating in the investigation or resolution of a grievance is a violation of law and constitutes the basis for filing a separate grievance.

E. It is the policy of this College to process all grievances in a confidential manner, to the extent possible.

F. The President, Vice-President, or School Board member of the district may request that the Title IX Coordinator or any other authorized individual conduct an investigation of suspected violations of Title IX. The investigator will prepare a report as outlined in Level 2 of the grievance process.

## IV. PROCESS

### Level 1: Director of Student Success (informal and optional—may be bypassed by grievant)

Many problems can be solved by an informal meeting with the parties and the Director of Student Success. An exception is that complaints of sexual harassment should be discussed with the first line supervisor or administrator that is not involved in the alleged harassment. Persons filing complaints of sexual harassment should never be forced to confront the alleged harasser. Further, handling of complaints through informal measures should not be used to impede the prompt resolution of the complaint, and the grievant may bypass informal measures at any time to file a formal complaint.

### Level 2: Title IX (Title IX/Section 504) or Other Authorized Grievance Coordinator

If the complaint or issue is not resolved at Level 1, the grievant may file a written grievance stating: 1) the nature of the grievance; 2) the remedy requested; and 3) be signed and

dated by the grievant. The Level 2 written grievance must be filed with the Coordinator (or designated person) within sixty (60) days of the event or incident, or from the date the grievant could reasonably have become aware of such occurrences.

Upon receipt of a written grievance, the Coordinator shall authorize an investigation. The investigation may be conducted by the Coordinator, other MTC employees designated by the Coordinator, or by a 3rd party designated by the Coordinator. The investigating party shall provide a written report of the investigation within fifteen (15) working days to the Coordinator. The investigating report will include the following:

1. A clear statement of the allegations of the grievance and remedy sought by the grievant.

2. A statement of the facts as contended by each of the parties.

3. A statement of the facts as found by the Investigator and identification of evidence to support each fact.

4. A list of all witnesses interviewed and documents reviewed during the investigation.

5. A narrative describing attempts to resolve the grievance.

6. The Investigator's conclusion as to whether the allegations in the grievance are meritorious.

7. If the Coordinator believes the grievance is valid, the Coordinator will recommend appropriate action.

The Coordinator will publish a decision within ten (10) days of receipt of the report. Copies of the Coordinator's decision will be sent by certified mail to both parties to document receipt of the written decision. A copy will also be sent to the President and district superintendent.

**Level 3: President**

Either party may make a written appeal to the President within ten (10) days of receiving the Coordinator’s decision. The appeal must include the original complaint form, copy of the written decision, and a written statement as to the reason for the appeal. The President will review the material submitted and publish a decision to uphold, modify, or reverse the decision of the Coordinator within ten (10) days of receipt of the appeal. Copies of the President’s decision will be sent by certified mail to both parties to document receipt of the written decision.

Any recommended actions that are not under appeal will be implemented by the College within sixty (60) days, unless with reasonable justification communicated to all parties.

**Level 4: Superintendent of Schools**

If either party is not satisfied with the decision at Level 3, either party may make a written appeal to the Superintendent of Schools within ten (10) days of receiving the President's decision. The Superintendent will publish a decision within ten (10) days of receipt of the appeal. Copies of the Superintendent's decision will be sent by certified mail to both parties to document receipt of the written decision.

The decision of the Superintendent of Schools will be final.

## V. OTHER OPTIONS

At any time during this process, a grievant may file a complaint with the South Dakota Division of Human Rights (Labor & Management), 123 W Missouri Ave., Pierre, SD 57501 (605-773-3681) OR with the regional Office for Civil Rights, U.S. Department of Education, One Petticoat Lane, 1010 Walnut St, 3rd Floor, Suite 320, Kansas City, MO 64106 (816-268-0550) OR take legal action.

With questions or complaints contact:

Title IX Coordinator: Vice President of Operations and Human Resources, (605) 995-3023

TECHNICAL ASSISTANCE AVAILABLE:

South Dakota Department of Education
800 Governors Drive
Pierre, SD 57501-2291
Phone: (605) 773-4771

South Dakota Division of Human Rights
123 W. Missouri Ave.
Pierre, SD 57501
Phone: (605) 773-3681

**STUDENT COMPLAINTS**

Mitchell Technical College (MTC) recognizes that there may be conditions that need improvement, and that students and others should have some means by which their concerns may be effectively expressed, considered, and dealt with fairly. Such means can do much to maintain harmonious relationships between the College and the students, employees, and community.

Mitchell Tech will follow approved policies and procedures for handling complaints. MTC desires that all types of complaints be handled informally at the level closest to the origin of the complaint. However, a process is provided for filing official complaints when resolution is not achieved.

Students with a concern or complaint should start by requesting assistance from staff in the Center for Student Success. CSS staff will work with the student to address the issue through meetings, emails or other informal communication with involved parties. If efforts to reach a resolution are unsuccessful, or at any point in the process, the student may choose to initiate a formal complaint or appeal. Students wishing to file a formal complaint or appeal with the College should refer to Policy MTC 1045. Students wishing to file a grievance alleging a violation of federal or state civil rights laws, rules, and regulations should refer to Policy MTC 1046.

If the matter is not resolved through the college's formal processes, individuals may choose to file a complaint at the state level. Students who are South Dakota residents or who are attending courses on the Mitchell Tech campus may file unresolved complaints with the South Dakota Board of Technical Education. The BOTE office will only handle those complaints that concern educational programs or practices of technical colleges and that have exhausted the individual institution's formal process for complaints. The office does not handle anonymous complaints, nor does it intervene in matters concerning an individual's grades or examination results, as these are the prerogative of the college's faculty.

Mitchell Technical College is accredited by The Higher Learning Commission. For complaints related to institutional practices that may not meet the Criteria for Accreditation established by The Higher Learning Commission, individuals should direct complaints to HLC.

Allegations about an individual MTC program's failure to comply with program accreditation standards should be directed to the accrediting body in question.

A complaint or concern regarding Mitchell Tech's handling of education benefits for veterans should be directed to the U.S. Department of Veterans Affairs. All information, including your name unless filed anonymously, will be shared with Mitchell Tech. College officials will follow procedures found in Policies 1045 and 1046 for any complaints submitted to the VA.

A complaint of consumer fraud on the part of Mitchell Tech should be directed to the South Dakota Attorney General's office.

# Accreditation of MLT Program

# Accreditation of MLT Program

## National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)

The National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) accredits cytogenetic technologist (CG), doctorate in clinical laboratory science (DCLS), diagnostic molecular scientist (DMS), histotechnician (HT), histotechnologist (HTL), medical laboratory assistant (MLA), medical laboratory scientist (MLS), medical laboratory technician (MLT), pathologists' assistant (PathA) and phlebotomist (PBT) educational programs.

NAACLS is comprised of three review committees, the Board of Directors and the executive office staff. The Review Committee for Accredited Programs (RCAP) reviews MLS, MLT, HTL, HT, DMS, CG and PathA programs for accreditation. The Doctoral Review Committee (DRC) reviews DCLS programs for accreditation. The Programs Accredited Review Committee (PARC) reviews PBT and MLA programs for accreditation. The Board of Directors functions as the governing unit of NAACLS and grants final accreditation awards. The executive office staff facilitates the accreditation processes.

NAACLS is an autonomous, nonprofit organization established in 1973 as the successor to the American Society for Clinical Pathology (ASCP) Board of Schools. ASCP and the American Society for Clinical Laboratory Science (ASCLS) are sponsoring organizations of NAACLS. The American Association of Pathologists' Assistants (AAPA), the National Society for Histotechnology (NSH) and the Association of Genetic Technologists (AGT) are participating organizations. NAACLS is recognized by the Council for Higher Education Accreditation (CHEA).

**National Accrediting Agency for Clinical Laboratory Sciences (NAACLS)**
**5600 N. River Road Suite 720**
**Rosemont IL, 60018**
**http://www.naacls.org**
**773.714.8880**

# Standards of Accredited Educational Programs for the Medical Laboratory Technician

**PREAMBLE**

**Objectives**

The purpose of these standards and the Description of the Profession is to establish, maintain, and promote standards of quality for educational programs in the medical laboratory sciences and to provide recognition for educational programs which meet or exceed the minimum standards outlined in this document.

The standards are to be used for the development and evaluation of medical laboratory technician programs. Self-study reviewers and site visit teams assist in the evaluation of the program's compliance with the standards. Lists of accredited programs are published for the information of students, employers, and the public.

**DESCRIPTION OF THE MEDICAL LABORATORY TECHNICIAN PROFESSION**

The medical laboratory technician is qualified by academic and applied science education to provide service in medical 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; 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, 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 or 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 stakeholders 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.

**DESCRIPTION OF CAREER ENTRY OF THE MEDICAL LABORATORY TECHNICIAN**

At entry-level, the medical laboratory technician will possess the entry-level competencies necessary to perform routine medical laboratory tests in areas such as Clinical Chemistry, Hematology/Hemostasis, Immunology, Immunohematology/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.

At career entry-level, the medical laboratory technician will have the following professional competencies.

They will have the ability to:

**A. Professional Behaviors and Communication**
Demonstrate professional and ethical behavior along with effective interpersonal communication skills when engaging with various stakeholders.

Establish effective interprofessional working relationships with other health care professionals, demonstrating comprehension of and respect for their roles and patient welfare.

Recognize and appreciate the importance of engaging with an inclusive workforce through collaboration.

Value and advocate for a workplace environment that fosters inclusivity, diversity, equity, and accessibility.

**B. Safety and Compliance**
Comply with government regulations and accreditation standards relevant to the respective discipline.

Adhere to prescribed protocols for overall laboratory safety, biohazard containment, and waste disposal.

Implement quality assurance principles to ensure the validity and accuracy of laboratory-generated data.

**C. Education and Research**
Acknowledge and respond to individual requirements for continuing education and development to foster growth and maintain professional competence.

Provide instruction to users of laboratory services regarding appropriate procedures, test utilization and interpretation.

**D. Laboratory Operations and Management**
Employ a logical and systematic problem-solving approach when identifying errors and/or

technical issues with laboratory procedures and instrumentation.

Apply principles of data security to safeguard laboratory and hospital information systems

Apply principles of quality assurance to ensure validity and accuracy of laboratory data.

**E. Pre-Analytical Competencies**
Evaluate specimen collection, processing, and storage procedures in accordance with standard operating procedures.

Ensure specimen integrity is maintained throughout the sample procurement process.

**F. Analytical Competencies**
Adhere to written policies, processes, and procedures for analytical testing, analysis, and instrumentation maintenance.

Evaluate and provide rationale for troubleshooting protocols in analytical testing when appropriate.

Perform routine procedures in accordance with standard operating procedures.

Apply quality control principles to analytical testing procedures, including instrument calibration, statistical analyses of control results, Westgard rules, and verification of reference ranges.

Perform basic calculations, dilutions, and statistical analyses for procedures and analytical testing in the respective discipline.

Apply theoretical principles of instrumentation to current methods of analysis.

**G. Post-Analytical Competencies**
Perform all post-analytical procedures in accordance with quality assurance protocols and regulatory standards.

Evaluate results for accuracy relative to quality control, patient history, specimen integrity, and overall clinical correlation.

Report test results, including abnormal, STAT, and critical values, in accordance with the laboratory's standard operating procedures

# STANDARDS FOR ACCREDITED AND APPROVED PROGRAMS

## I. Sponsorship

**A. Sponsoring Institution**

The sponsor of an educational program must be one of the following:

1. A post-secondary academic institution accredited by an institutional accrediting agency that is recognized by the U.S. Department of Education and given the authority to provide post-secondary education, which awards a minimum of a certificate at the completion of the program.
2. A hospital, medical center, or laboratory accredited or licensed by an applicable recognized agency (see Standards Compliance Guide), which awards a minimum of a certificate at the completion of the program.
3. A secondary or post-secondary institution, recognized by the state in which it is located (for phlebotomy and medical laboratory assistant programs only).
4. An institution recognized by the national government or a regional/national accrediting agency for higher education of the country in which it is located as a post-secondary academic institution with degree-granting authority (for programs outside of the United States).
5. A Public Health Laboratory or an organization/corporation of member Public Health Laboratories recognized by the state in which it is located and not affiliated with a hospital, medical center, or accredited secondary or post-secondary institution.

**B. Responsibilities of the Sponsor and/or Program Partner**

1. The sponsor is responsible for:
    a. Ensuring that all provisions of the standards are met.
    b. Curriculum development.
    c. Maintaining student transcripts permanently.
    d. Defining its administrative line of authority.
2. The sponsor and/or program partner are responsible for:
    a. Course selection by program faculty and staff.
    b. Appointing faculty and staff.
    c. Granting the degree and/or certificate documenting satisfactory completion of the educational program.
    d. Ensuring that appropriate personal safety measures are addressed for students and faculty.
    e. Ensuring that graduates of the program have obtained or will obtain the minimum degree and/or certificate upon completion of the program:
        i. PathA programs: a master's degree or higher, or a certificate for students who hold or complete the required degree.
        ii. BMS, CG, DMS, HTL, MLM, MLS, and PHM programs: a bachelor's degree or higher, or a certificate for students who hold or complete the required degree.
        iii. HT and MLT programs: an associate degree or higher, or a certificate for students who hold or complete the required degree.
        iv. MLA and PBT programs: a certificate for the student.
    f. Ensuring that the activities assigned to students in the applied learning experiences setting are educational.
3. There must be documented ongoing communication between the sponsor and/or program partner and its active affiliates for exchange of information and coordination of the program.
4. The sponsor and/or program partner must provide eligible students with the opportunity to participate in applied learning experiences.
5. The sponsor and/or program partner must have a formal affiliation agreement or memorandum of

understanding (MOU) with affiliates who are involved in the education of the students, which describes: a. The relationship. b. The roles. c. The responsibilities of the sponsor and/or program partner and that entity.

## II. Assessment and Continuous Quality Improvement

**A. Systematic Assessment**

There must be a documented plan for continuous and systematic assessment of the effectiveness of the program.

**B. Outcome Measures**

The following outcome measures must be documented and submitted to NAACLS annually for use in program assessment and continuous quality improvement.

1. External certification results.
2. Graduation rates.
3. Placement rates.
4. Attrition rates.
6. Other (optional).

**C. Feedback**

The following findings must be collected and used in program assessment and continuous quality improvement.

1. Findings from graduate feedback.
2. Findings from employer feedback.

D. Program Assessment and Modification All programs must make efforts to continually improve by:

1. Review of required feedback and last three active years of required outcome measures.
3. Analysis of curriculum development, resource acquisition/allocation.
4. Modifications made based on analysis of required feedback and/or outcome measures.
5. Assessment of effectiveness resulting from any changes implemented.

## III. Resources

**A. General Resources**

1. The sponsor must provide sufficient financial resources for the continued operation of the education program to meet documented goals.
2. Resource assessment of personnel and physical resources must be a part of continuous program evaluation.

**B. Personnel**

1. The sponsor must appoint a sufficient number of personnel to achieve program outcomes.

**C. Physical Resources**

**1.** The sponsor must provide physical resources such as facilities, equipment and supplies, information resources, and instructional resources sufficient to achieve program outcomes.

## IV. Students

**A. Publications and Disclosures**

1. The following must be defined, published, and readily available to prospective and enrolled students:
   a. Program mission statement.

b. Program goals and graduate competencies.
c. Programmatic accreditation status including the name, address and contact information for NAACLS.
d. Results of external certification outcomes, graduation rates outcomes, placement rates outcomes of the last three active years.
e. List of active partners, academic affiliates and clinical/applied learning experiences facilities.
f. Admission criteria, including essentials functions, advance placement, transfer of credits and credits for experiential learning.
g. List of course descriptions including the number of academic credit hours per course (if appropriate).
h. Names and academic rank or title of the program director and faculty (and medical director for pathologists' assistant programs).
i. Current tuition and fees including withdrawals and refund policies.
j. Policies and processes by which students may perform direct patient and/or reportable work.
k. Policies and procedures for:
    i. Advising and guiding students through the program while maintaining confidentiality and impartiality.
    ii. Obtaining clinical/applied learning experience assignments, specifically addressing if applied learning experiences are not provided through programmatic processes, or cannot be immediately guaranteed.
    iii. Student grievance and appeals.
    iv. For program completion, probation, suspension, dismissal, and academic appeals.
l. Academic calendar.
m. Rules and regulations governing acceptable personal and academic conduct, including expectations for behavior while completing clinical/applied learning experiences.
n. A line of authority for administrative personnel including:
    i. Roles and responsibilities as they apply to enrolled students.
    ii. Contact information.

**B. Student Records**

1. The program must maintain student records, conforming to any governmental or sponsor regulations.
2. The student transcript/student record must be retained permanently by the sponsor and contain at least:
    a. Legal name.
    b. Grades and credits.
    c. Dates of admission and completion.

**C. Health and Safety**

1. Health
    a. The program must provide evidence that the health and safety of students, faculty, patients, and program specific staff is safeguarded.
2. Safety
    a. The program must provide evidence that each enrolled student, all faculty members, and program specific staff have received biohazard and safety training.

# V. Operational Policies

## Fair Practices

A. Student recruitment and admission must be non-discriminatory in accordance with existing

governmental regulations and those of the sponsor.

B. Faculty recruitment and employment practices must be non-discriminatory in accordance with existing governmental regulations and those of the sponsor.
C. The granting of the degree or certificate must not be contingent upon any type of external certification or licensure examination.
D. A general plan must be provided, addressing temporary and permanent program closure. In the event of such closure, a detailed plan which includes provisions for current students to complete their course of study must be submitted to NAACLS within 30 days of the official announcement.
E. Students must have an assigned preceptor, appropriate for the discipline, who directly oversees their applied learning experiences.
F. Students may not be substituted for laboratory employees/personnel to perform direct patient and/or reportable work, during their applied learning experiences.
G. Student employment at an applied learning site must be non-compulsory and must be outside of assigned applied learning experiences/academic hours.

# VI. Administrative: Maintaining Accreditation/Approval

**Program/Sponsoring Institution Responsibilities**

Programs are required to comply with administrative requirements for maintaining accreditation including:

A. Submitting required documentation to NAACLS by the established deadline. These include but are not limited to self-study reports, applications for continuing accreditation and required progress reports, interim report and action plans.
B. Paying accreditation fees, as determined by NAACLS, by the due date.
C. Informing NAACLS of relevant administrative and operational changes within 30 days. These include changes in program official names, physical addresses, URL or telephone numbers; status or location, changes in CEO/dean or president/chancellor, and institution name.
D. Agreeing to a site visit date before the end of the period for which accreditation is awarded.
E. Submitting an outcomes report on an annual basis to NAACLS addressing major changes, if any, and program assessment standards (Standard II) by the established deadline date.
F. Verifying compliance with these standards upon request from NAACLS, which may include submitting to an off-cycle site visit.
G. Protecting the intellectual property of NAACLS materials by:
    1. Using proper citations when sharing NAACLS content or materials.
    2. Obtaining written approval prior to distributing any content or materials purchased from NAACLS.
H. Submitting all materials and conducting all NAACLS-accreditation related communication in English.
    1. All material translations to be completed by an individual with experience in or knowledge of medical laboratory terminology.

# VII. MLT Program Administration

**A. Program Director**

The program must have a NAACLS approved medical laboratory professional serving as program director who meets the following qualifications and executes all required responsibilities.

1. Qualifications

   The program director must have:

   a. An earned master's or doctoral degree.

   b. An ASCP BOC or ASCPi BOC generalist certification as a medical laboratory scientist.

   c. Three years of teaching experience.

d. Knowledge of education methods and administration as well as current NAACLS accreditation procedures and certification procedures.
e. (for international programs only) If the program director does not hold ASCPBOC or ASCPi BOC certification as a medical laboratory scientist, a qualified professional who does hold ASCP-BOC or ASCPi BOC certification as a medical laboratory scientist must hold appointment as an accreditation liaison.

2. Responsibilities
The program director must:
a. Be responsible for the organization, administration, instruction, evaluation, continuous quality improvement, curriculum planning and development, directing other program faculty/staff, and general effectiveness of the program.
b. Provide evidence that s/he participates in the budget preparation process.
c. Engage in a minimum of 36 hours of documented continuing professional development every three years.
d. Be responsible for maintaining NAACLS accreditation of the program.
e. Have regular and consistent contact with students, faculty, and program personnel.
3. Appointments
The program director must have a faculty or clinical appointment at the sponsoring institution.

Program directors who have been approved as a program director of a NAACLS accredited MLT program prior to October 1, 2013, remain eligible as a program director.

**B. Site Program Administrator (required for programs with sponsors and partners; assigned to each participating site)**

a. Qualifications
The site program administrator must:
   a. Have a bachelor's degree.
   b. Hold the same level certification required of a program director.
   c. Have at least one year of experience in medical laboratory science education to include knowledge of:
      i. Education methods.
      ii. Program assessment and administration.
      iii. Certification/licensure procedures.
2. Responsibilities The site program administrator, when required, is responsible for:
   a. Coordinating teaching and clinical/applied learning experiential education.
   b. Evaluating program effectiveness.
   c. Maintaining appropriate communications with the program director.

**C. Faculty/Instructors**

1. Didactic Instructor Appointments
The program must have qualified faculty/instructors who hold appointments within the educational program. The program must ensure and document ongoing professional development of the program faculty/instructors.
   a. Qualifications
   Faculty/instructors designated by the program must:
      i. Demonstrate adequate knowledge and proficiency in their content areas.
      ii. Demonstrate the ability to teach effectively at the appropriate level.
   b. Responsibilities
   The responsibilities of the faculty/instructors must include:
      i. Participation in teaching courses.

ii. Evaluation of student achievement.
iii. Development of curriculum, policy and procedures.
iv. Assessment of program outcomes.

2. Clinical/Applied Learning Experience Liaison
   At least one clinical/applied learning experience liaison, who is employed by the clinical/applied learning site, must be designated at each clinical/applied learning site affiliated with the program to coordinate clinical/applied learning experiences for students.
   a. Qualifications
      The clinical/applied learning experience liaison must:
      i. Be a health care professional staff member of the facility who demonstrates the ability to effectively coordinate clinical/applied learning experiences of the students.
      ii. Demonstrate knowledge of the program discipline.
      iii. Have at least one year experience as a health care professional.
   b. Responsibilities
      The clinical/applied learning experience liaison must be responsible for:
      i. Coordinating clinical instruction at the site.
      ii. Maintaining effective communication with the program director or designee.

**D. Advisory Committee**

1. There must be an advisory committee composed of individuals from the community of interest who have knowledge of clinical laboratory science education.
2. The advisory committee of the program shall have input into the program and curriculum to maintain current relevancy and effectiveness.

**E. Accreditation Liaison (when required, for international programs only)**

1. Qualifications
   The accreditation liaison, when required, must be a medical laboratory professional who:
   a. Has knowledge of NAACLS accreditation.
   b. Has at least a master's degree and three years of experience in the program discipline.
   c. Holds ASCP-BOC or ASCPi BOC certification as a medical laboratory scientist.
2. Responsibilities
   The accreditation liaison, when required, must:
   a. Provide guidance and assistance in NAACLS accreditation requirements, policies and procedures.
   b. Provide input into the curriculum and continuous program assessment and improvement.
   c. Have regular contact, program director, faculty and program personnel.

**VIII. MLT Curriculum Requirements**

**A. Instructional Areas**

1. The program must identify prerequisite content in biological sciences, chemistry and mathematics that provides the foundation for course work required in the laboratory science program.
2. The program must deliver instruction utilizing cognitive, psychomotor, and affective learning domains that enable the student to meet entry –level competencies of the program discipline.
3. The curriculum must address pre-analytical, analytical and post-analytical components of laboratory services. This includes principles and methodologies including collection, processing, 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. The program curriculum must include the following medical laboratory scientific content:

a. Clinical chemistry.
b. Hematology/hemostasis.
c. Immunology.
d. Immunohematology/transfusion medicine.
e. Microbiology.
f. Urine and body fluid analysis.
g. Laboratory operations.

4. The program curriculum must also include:
    a. The application of safety and governmental regulations compliance.
    b. Principles and practices of professional conduct and the significance of continuing professional development.
    c. Communications sufficient to serve the needs of patients, the public and members of the health care team.
    d. Interprofessional education and collaborative practice.

**B. Learning Experiences**

1. Learning experiences must be properly sequenced and include content and activities that enable students to achieve entry-level competencies in each major discipline as listed in Standard VIII Instructional Areas.
2. After demonstrating competency, students, under qualified supervision, may be permitted to perform procedures as defined in Standard V.E.

**C. Evaluations**

1. Evaluation systems must relate to course content and align with program and course competencies.
2. Evaluation systems must be employed frequently enough to provide students and faculty with timely indications of the students' academic standing and progress.
3. The evaluation systems must serve as a reliable indicator of the effectiveness of instruction and course design.