



**Medical Laboratory Technician
Student Handbook
2021-2022 Admission Year**

Higher Education Center

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WELCOME

Welcome to Southwestern College (SWC) Medical Laboratory Technician Program. Each one of you is embarking on a journey that will lead you on an adventure of learning and growth, both personally and professionally.

The MLT Handbook is your guide to all of the policies and procedures for the program. Let it be your reference during your time at SWC. Your faculty will provide you with all of the tools necessary for your success however, you, as the student, are the one in charge of the results of your education. It is vital for you to remain focused and dedicated to your studies in order to reach your goals.

You have chosen laboratory science as your field of study and your future career. The laboratory medicine profession is one of excitement, intrigue and is very demanding. You will find the same during your educational experience. Remaining active and engaged during your time in the MLT program will allow you to navigate through any difficult stresses. The program, like the profession, is both challenging and rewarding.

I strongly encourage you to bring your curiosity, enthusiasm and love of learning. The MLT faculty wishes you the best of luck and highest academic achievements throughout your program. Welcome to SWC, have fun and enjoy every minute!

Sincerely,

*Deanna M. Reinacher, Ed.M., MT(ASCP), CLS
MLT Program Director*



Introduction

The Medical Laboratory Technician program will provide a quality educational program that complies with the established essentials and guidelines of an accredited educational program for the Medical Laboratory Technician. The college recognizes that to achieve this, the student must be able to grasp technical and theoretical knowledge and successfully apply this knowledge in a clinical setting.

The program recognizes the importance of professional standards, morals, and ethical obligations to the community while committing itself to an educational program. Development of professional competence, personal growth and effective patient care will be major areas of concentration in providing the community and the profession with entry level Medical Laboratory Technicians.

The number of students accepted each fall is dependent on the number of available clinical site placements. The program begins each year in the fall semester and continues for 18 months with graduation at the completion of the final fall semester. The Medical Laboratory Technician Program consists of lectures and laboratory experiences at the National City Higher Education Center, followed by practical clinical experience at affiliated clinical laboratories. While class times and days will vary, all didactic lecture and lab classes are in the evening generally from 4:00pm-9:30pm, Monday through Friday at the National City Higher Education Center. All clinical experiences are day hours, generally 7:00am-3:30pm, Monday through Friday. Students are not in classroom and clinical experiences at the same time, with the exception of the final semester, which includes a review course and meets 1 day per week. The MLT program is a full-time program. Classes are not offered on a part-time basis.

General Description

A Medical Laboratory Technician performs routine clinical laboratory testing procedures to provide scientific information needed in diagnosis, prognosis and treatment of disease. Technicians use sophisticated instrumentation for these evaluations, which encompass quantitative and qualitative chemical and biological analyses of body specimens. Technicians function under the supervision of a qualified practitioner.

The program prepares students for a career in Medical Laboratory Technology through the studies in humanities, social and natural sciences, and the field of Medical Laboratory Technology. Emphasis is placed on the clinical practice in the context of laboratory medicine. Graduates are eligible to take a nationally recognized certification examination.

Program Mission Statement

The mission of the Southwestern College Medical Laboratory Technician Program is to provide students with the technical skills and knowledge needed to perform routine clinical laboratory testing in all major areas of the laboratory. In addition, we will foster a culture of life-long learning by instilling the value and confidence necessary in a student-centric environment.



Program Goals

1. To produce graduates eligible to take a nationally recognized certification examination.
2. To facilitate and foster the values necessary to practice laboratory medicine within the ethical and legal framework of the profession and the community.
3. To produce students who exhibit professional behavior consistent with current academic and professional standards.
4. To develop students who can analyze, interpret and perform laboratory tests proficiently.
5. To help students acquire and strengthen problem solving and critical thinking skills.
6. To assist students in performing all necessary duties in a safe environment utilizing all the latest techniques in the laboratory arena.
7. To produce students who have the knowledge and respect needed to safely deal with hazardous materials.
8. To develop positive student attitudes for the pursuit of lifelong professional growth and development.
9. To provide graduates with the skills necessary to secure entry-level employment as a medical laboratory technician.

Program Competencies

1. Collect and process biological specimens for analysis. Store or transport samples for analysis using appropriate preservation methods.
2. Identify and correct procedural errors or results in laboratory testing, within predetermined limits.
3. Conduct quality control procedures on analytical tests, equipment, reagents and media.
4. Operate and maintain laboratory equipment and instrumentation.
5. Communicate effectively and behave professionally with patients, laboratory personnel and other members of the health care team.
6. Correlate laboratory test results with common diseases or conditions.
7. Apply basic scientific knowledge in learning new procedures.

Graduates' competencies are evaluated by the completion of didactic and clinical learning objectives. In addition, critique of the program from students and faculty, and feedback from employers are used to assure the competencies of graduates.



Program Student Learning Outcomes (SLOs)

1. Ability to articulate professionally and competently with all stakeholders in the healthcare setting regarding patient care.
2. Analyze and evaluate medical laboratory science theory to achieve a minimum passing score of 400 on the American Society for Clinical Pathology (ASCP) board of certification exam.

NAACLS Accreditation

The program is nationally accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) at 5600 N. River Road, Suite 720, Rosemont, IL 60018
FAX, (773) 714-8886, Phone (773) 714-8880, or (847) 939-3597.

Additional information concerning the accreditation process can be found on the NAACLS website: www.naacls.org.

Career Options

A Medical Laboratory Technician's (MLT) responsibilities will vary according to the size of the institution where they are employed and the extent of services it offers. This work may include:

- Performing routine tests in medical laboratory for use in prevention, diagnosis, treatment and management of disease.
- Collecting specimens, cultivating, isolating and identifying microorganisms for analysis.
- Using sophisticated biomedical instruments to generate accurate and reliable test results.
- Performing medical research to further control and cure diseases.

Course Descriptions, Objectives and SLO's

The instructor/student ratios for the didactic courses are 1:20; 1:15 for the labs and the clinical rotations are 1:2.

Affective Objectives

- Student demonstrates professionalism by complying with the attendance policy.
- Student demonstrates initiative by reviewing objectives and completion of reading assignments prior to class (coming to class prepared).
- Student submits assignments by the stated deadline.
- Student demonstrates enthusiasm and interest in the course by asking questions, participating in class discussions and meeting with professor during office hours as needed.
- Student utilizes constructive criticism to correct deficiencies and improve performance.
- Student works cooperatively with professor and fellow students to achieve the goals of each assigned activity.
- Student displays flexibility and adaptability to change.
- Student demonstrates the ability to coordinate multiple tasks.
- Student uses supplies and reagents efficiently.



- Student demonstrates progression in laboratory skills by effective organization.
- Student demonstrates insightful evaluation of results obtained by paying close attention to detail.
- Student treats patient information/test results as confidential and releases information only following established protocol.
- Student conveys information (verbally) in a clear, concise manner.
- Student conveys information (written) in a clear, concise manner.
- Student asks pertinent questions.
- Student responds to questions in a thoughtful manner.

MLT 79 Medical Laboratory Technician Certification/Licensure Examination Preparation

Provides students with concepts and techniques necessary to pass the national American Society for Clinical Pathologists (ASCP) examination as well as the California state license examination. Focuses on the application of critical thinking and emphasizes theory of laboratory concepts.

- Student will discuss and describe components of the American Society for Clinical Pathologists (ASCP) test plan and Computer Adaptive Testing (CAT).
- Student will read and interpret instructions and examination material provided by the state licensing and national certification agencies.
- Student will correlate laboratory test results to the diagnosis and treatment of disease.
- Student will appraise the concept of test-taking strategy to read question stems with greater accuracy and eliminate distractions.
- Student will apply the theory of clinical laboratory medicine in a mock exam process by identifying illustrations, photomicrographs, and analyzing lab data.

SLO: Inspect and examine written criteria provided by the state licensing and national certification board to appropriately apply and to meet all requirements for the examinations.

MLT 80 Introduction to the Clinical Laboratory Profession

Introduces functions and duties of a Medical Laboratory Technician (MLT). Emphasizes clinical laboratory safety issues, laboratory equipment, basic laboratory techniques, basic laboratory mathematics, regulatory agencies, and professional responsibilities relative to other departments of health care.

- Student will describe the laboratory/departments organizational structure within the health care delivery system.
- Student will identify and apply medical terminology regarding structure and function of the human body.
- Student will identify and explain the professional conduct and personal communication skills that are required in relation to patients, laboratory personnel, the public, and other health care professionals.
- Student will define and apply the ethical and legal responsibilities of the profession.
- Student will demonstrate proper infection control, safety and appropriate waste disposal practices.



- Student will demonstrate proper ergonomic practices related to computer use and laboratory equipment.
- Student will identify and distinguish between California state licensure and National certification.
- Student will identify the parts and functions of the light microscope and model proper use and care of a microscope.
- Student will demonstrate and apply the standard precautions utilized in the laboratory according to the Occupational Safety and Health Administration (OSHA) guidelines.
- Student will demonstrate the safe use and disposal of biohazardous material.
- Student will perform basic laboratory mathematic calculations necessary to perform tests, make dilutions, and prepare solutions.
- Student will demonstrate and explain correct pipetting technique, solution and dilution preparation, including serial dilutions.
- Student will perform proper specimen aliquotting and labeling techniques.
- Student will demonstrate adequate skills for slide preparation and slide staining techniques.

SLO: Student will be able to apply basic laboratory math to prepare solutions, dilutions and solve standard deviation and coefficient of variation equations.

MLT 90 Clinical Urinalysis and Body Fluids

Introduces various properties and constituents of urine and body fluids via “on hands” learning. Emphasizes interpretation and handling of urine and body fluid specimens. Includes examination of urine and body fluids physically, chemically and microscopically, and compares these clinical values to health and disease.

- Student will examine and describe the anatomy and physiology of the human urinary system.
- Student will identify and describe the three main components of a routine urinalysis.
- Student will summarize, identify, and describe quality control and quality assurance as it applies to the urinalysis department of the clinical laboratory.
- Student will analyze test results and correlate the values to diseases or conditions affecting the kidney or urinary tract.
- Student will describe and evaluate body fluid analysis procedures in terms of the clinical laboratory requirements.
- Student will describe and evaluate miscellaneous specimens according to standard laboratory procedures.

SLO: Determine the diagnostic and therapeutic significance of laboratory results.

MLT 90L Clinical Urinalysis and Body Fluids Laboratory

Introduces various techniques and safety procedures in clinical urinalysis. Emphasizes examination of urine and body fluids.

- Student will demonstrate and apply the standard precautions utilized in the urinalysis laboratory according to Occupational Safety and Health Administration (OSHA) mandates.

- Student will demonstrate the safe use and disposal of biohazardous materials.
- Student will review and evaluate quality control results in the urinalysis department.
- Student will describe and list the urine specimen collection methods and preservatives.
- Student will demonstrate, by performance, the proper procedure for the physical analysis of urine.
- Student will demonstrate, by performance, the proper procedure for chemical analysis of urine.
- Student will identify and describe the function of each part of the microscope as it relates to performing microscopic urinalysis.
- Student will demonstrate, by performance, the proper procedures for miscellaneous body fluid counts and differentials.

SLO: Evaluate case study presentations by other students.

MLT 100 Clinical Hematology/Coagulation

Introduces the origin of the various types of blood cells and homeostatic process. Includes human hematological disorders and classification based on clinical laboratory findings.

- Student will explain the study of hematology and summarize its basic concepts and basic morphologies.
- Student will examine and describe hematopoiesis in the human fetus, newborn and adult.
- Student will describe the requirements for bone marrow specimen collection, handling, storage and preparation.
- Student will evaluate and describe red blood cell (RBC) metabolism as it relates to the RBC membrane, hemoglobin structure function, and RBC metabolic pathways.
- Student will compare and contrast erythrocyte maturation in its various stages of normal and abnormal development.
- Student will distinguish between the various anemias, correlate red blood cell morphology, and laboratory test values for each type.
- Student will compare and contrast leukocyte maturation in its various stages of normal and abnormal development.
- Student will identify and explain the various types of leukemia classifications, and correlate cell morphology and laboratory test values for each type.
- Student will examine and describe specific changes in leukocyte morphology, number and function in relation to diagnosis of disease.
- Student will compare and contrast various types of lymphomas, myeloproliferative disorders and lipid storage diseases and correlate cell morphology and laboratory test values for each type.
- Student will identify and evaluate the regulation of thrombosis and anticoagulant therapy.
- Student will summarize and describe platelet and hemostatic mechanisms.
- Student will differentiate and explain the circulating anticoagulants (Inhibitors).
- Student will summarize and describe the disorders of plasma clotting factors including laboratory test results and clinical manifestations.
- Student will categorize the disorders of primary hemostasis.
- Student will analyze and explain the events that take place in fibrinolysis.



- Student will summarize and identify the events that take place in primary and secondary hemostasis.
- Student will examine and describe disseminated intravascular coagulation according to clinical and laboratory abnormalities.

SLO: Evaluate patient case studies and their clinical correlation. Demonstrate communication skills to ensure correct, effective, courteous and appropriate information transfer.

MLT 100L Clinical Hematology/Coagulation Laboratory

Introduces various techniques and safety procedures used in the clinical hematology laboratory. Emphasizes morphology, the identification of common human blood cells, platelet function tests, and intrinsic and extrinsic clotting pathway testing.

- Student will demonstrate and apply the standard precautions utilized in the hematology laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate the safe use and disposal of biohazardous materials.
- Student will set up and review Erythrocyte Sedimentation Rate (ESR), Sickle cell and reticulocyte counts tests.
- Student will calculate red blood cell (RBC) indices and interpret the significance of their changes in the various anemias.
- Student will demonstrate and describe the use of an automated hematology and coagulation analyzers including start-up, routine operation and maintenance.
- Student will compare and contrast normal ESR ranges, reticulocyte counts for adult males, females, and infants.
- Student will identify the parts and functions of the light microscope and model proper use and care of the microscope.
- Student will compare and contrast normal RBC, WBC and hematocrit ranges for adult males and females as well as infants and adolescents.
- Student will prepare peripheral blood smears and perform differential cell counts on normal and abnormal specimens.
- Student will list the specimen collection procedures and discuss how these can affect test results.
- Student will identify and describe quality control and quality assurance as it applies to the hematology department of the clinical laboratory.
- Student will evaluate and describe methods of measurements used in automated hematology and coagulation instrumentation.
- Student will describe the Activated Protein C Resistance (APCR) and the prevalence in Caucasians versus Hispanic, African-American, Asian and Native American populations.
- Student will compare and contrast the various instrument options for performing PT, PTT and fibrinogen tests.
- Student will relate the importance of International Normalized Ratio (INR) in monitoring anticoagulant therapy.



- Student will discuss and identify the mechanism of action for Prothrombin Time (PT) test and Activated Partial Thromboplastin Time (PTT) test.
- Student will illustrate the anatomy and physiology of the thrombocyte (platelet).
- Student will compare and contrast manual white blood cell, RBC and platelet (PLT) counts with those from the automated hematology analyzer.
- Student will describe the inherited Protein C Deficiency in infants.
- Student will describe the prevalence of Factor V Leiden deficiency in African Americans and Asians versus Europeans.
- Student will describe the X-linked recessive disorder of Factors VIII (Hemophilia A) and IX (Hemophilia B).
- Student will discuss and identify the mechanism of action for the platelet function analyzers.

SLO: Demonstrate essential troubleshooting techniques used in professional practice. Demonstrate thinking and reasoning skills by performing quality testing in accordance with standard operating procedures while practicing standard precautions.

MLT 102 Clinical Hematology, Coagulation, Urinalysis and Body Fluids Practicum

Introduces entry-level clinical laboratory practice and experience in the department of hematology, urinalysis, coagulation, and body fluids. Emphasizes technique, accuracy, and precision.

- Student will demonstrate and apply departmental procedures for safety according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate and explain the safe use and disposal of biohazardous materials.
- Student will demonstrate proficiency in the operation of automated or semi-automated instrumentation.
- Student will summarize and identify the test methods and principles learned during their rotation.
- Student will interpret and evaluate all hematology and coagulation values.
- Student will interpret and evaluate all urinalysis and body fluid values.
- Student will demonstrate professionalism in appearance and behavior while in the laboratory setting.
- Student will explain and demonstrate the specimen processing and handling, criteria for specimen rejection, and use of laboratory information system (LIS).

SLO: The Students will demonstrate knowledge of fundamental principles of Clinical Hematology, Coagulation, Body Fluids and Urinalysis by obtaining a minimum score of 75% on the Performance Checklist (PCL) at the end of the clinical rotation.

MLT 110 Clinical Chemistry I

Provides theoretical, fundamental, basic instrumentation methodologies, and includes practical concepts associated with testing procedures used in the clinical chemistry laboratory. Include important characteristics of proteins, carbohydrates, lipids and NPNs, and the relationships to diseases.

- Student will demonstrate and apply the fundamental concepts critical to any analytical procedure.
- Student will demonstrate and describe the use of basic supplies and equipment correctly.
- Student will identify and summarize the use of standard precautions as they apply in the chemistry laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will summarize and explain quality control and quality assurance as it applies to the chemistry department of the clinical laboratory.
- Student will describe how a laboratory arrives at normal ranges and control ranges with different instruments.
- Student will review and summarize the different basic instrumentation methodologies used in laboratories including the mechanism of measurement and analytical limitations associated with each method.
- Student will compare and contrast electrolyte measurement methodologies (ISE's) used in the clinical laboratory and the clinical significance of laboratory results.
- Student will review and list the general properties of amino acids and proteins, abnormalities related to each, and methods of analysis.
- Student will list the proteins assayed in the clinical laboratory, identify their common methods of analysis, relate laboratory results to clinical significance, as well as evaluate their relationship to liver function.
- Student will evaluate and describe basic characteristics of enzyme kinetics and enzyme methods of measurement.
- Student will identify and explain the carbohydrates assayed in the clinical laboratory, their common methods of analysis, and relate laboratory results to clinical diagnosis and relationship to liver and pancreas function.
- Student will examine the non-protein-nitrogen substances (NPNS) commonly analyzed in the clinical laboratory, their relationship to renal and liver function, and identify the clinically significant results and relate these laboratory results to metabolism, chemical, and physical properties.
- Student will identify and review the lipids assayed in the clinical laboratory as well as their common methods of analysis, and relate laboratory results to clinical significance.
- Student will describe the principles behind different point of care (POC) instruments and explain the responsibilities of the tech assigned to a POC program.

SLO: Determine the diagnostic and therapeutic significance of laboratory results.



MLT 110L Clinical Chemistry I Laboratory

Introduces general laboratory principles and specific basic instrumentation methodologies used in clinical chemistry analysis. Reviews laboratory math and a reintroduction to quality control and quality assurance. Emphasizes variables of the preanalytical phase, characteristics important to quality lab technique, and safety.

- Student will demonstrate and apply the standard precautions utilized in the chemistry laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate and explain safe use and disposal of biohazardous materials.
- Student will compare and contrast different types of chemistry laboratory instrumentation.
- Student will evaluate the difference in specimen types and assess how they affect chemistry analysis as part of the preanalytical phase.
- Student will demonstrate, by performance, the basic laboratory mathematics necessary to perform tests, make dilutions, and prepare solutions.
- Student will explain and describe the principle of spectrophotometry and its applications in clinical chemistry.
- Student will define quality assurance and quality control and evaluate their interrelationships and differences as they apply on a daily basis in the laboratory.
- Student will demonstrate and explain the correct pipetting techniques and dilution preparation, including serial dilutions.
- Student will use proper pipetting, dilution techniques, and application of spectrophotometry, and prepare a standard curve.
- Student will identify and explain the proteins and enzymes assayed in the clinical laboratory, their common methods of analysis, and clinical significance.
- Student will identify and explain the non-protein-nitrogen substances (NPNS) - such as creatinine, BUN, and Uric acid - assayed in the clinical laboratory, their common methods of analysis, and clinical significance.
- Student will practice creatinine clearance calculations.
- Student will perform and explain the carbohydrates, lipids, and electrolytes assayed in the clinical laboratory, their common methods of analysis, and clinical significance.

SLO: Demonstrate safe laboratory practice to include maintenance of working environment, abiding by all safety rules and regulations.

MLT 111 Clinical Chemistry II

Emphasizes the relationship between liver, cardiac, endocrine and pancreatic function with laboratory test results. Introduces important characteristics of electrolytes, acid-base balance, trace metals, therapeutic drug monitoring and tumor markers.

- Student will review and summarize the different basic instrumentation methodologies used in laboratories including the mechanism of measurement and analytical limitations associated with each method.
- Student will compare and contrast between the different electrolytes analyzed in the clinical laboratory and the clinical significance of the laboratory results.

- Student will discuss and identify the differences and causes of body acidosis and alkalosis conditions.
- Student will examine and explain trace elements, vitamins, and the regulatory mechanisms within the body to include the analyte, physiology involved, and clinical significance.
- Student will identify and distinguish between the heme-derivatives and hemoglobinopathies commonly analyzed in the clinical laboratory including their clinical significance, metabolism, and chemical and physical properties.
- Student will identify and list some of the common characteristics of the different porphyrias.
- Student will describe and explain the role of liver function in bilirubin metabolism, identify the tests used for bilirubin analysis, and relate laboratory results to clinical diagnosis.
- Student will evaluate and describe the common cardiac diseases, diagnostic tests, and routine treatment for heart disease.
- Student will identify and describe the tests and methods of the endocrine system, including the clinical significance of laboratory results.
- Student will examine and describe the concept and clinical utility of therapeutic drug monitoring (TDM) and clinical utility of toxicology.
- Student will identify and describe specific toxicology terminology.
- Student will list and discuss the basic steps of pharmacokinetics.
- Student will describe the common pancreatic and gastrointestinal tract diseases and identify the diagnostic tests used.
- Student will identify and describe the commonly ordered tumor markers assayed in the clinical laboratory.
- Student will describe the commonly ordered body fluid chemistry tests and their diagnostic clinical significance.

SLO: Exhibit analytical and critical thinking skills necessary to succeed in laboratory medicine.

MLT 111L Clinical Chemistry II Laboratory

Introduces clinical chemistry tests specific to the special chemistry department. Emphasizes sodium and calcium assays as well as lipid and iron panels.

- Student will demonstrate and apply the standard precautions utilized in the chemistry laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate and explain the safe use and disposal of biohazardous materials.
- Student will perform sodium and calcium serum analysis in the laboratory.
- Student will practice converting normal reference ranges into different units of measurement for electrolytes, calculate anion gaps, and calculate osmolality.
- Student will identify acidosis and alkalosis conditions with and without compensation from a series of case studies or laboratory ABG values.
- Student will perform iron and total iron-binding capacity analysis, practice percent saturation calculations, and discuss the clinically significant results and relate them to disease conditions.



- Student will perform a lipid panel and explain the lipids assayed in the clinical laboratory, their common methods of analysis, clinical significance related to heart disease, and calculations for Low Density Lipoproteins (LDL).
- Student will use a variety of case scenarios and apply the various endocrine tests in diagnostic exercises.
- Student will use a variety of case scenarios to understand the use of Therapeutic Drug Monitoring (TDM) and tumor markers in the clinical setting.
- Student will describe and explain the role and different methodologies used in a point of care (POC) program in the clinical setting.

SLO: Demonstrate administrative skills consistent with philosophies of quality assurance, and continuous quality improvement.

MLT 112 Clinical Chemistry Practicum

Introduces entry-level clinical laboratory practice and experience in the department of general and special chemistry. Emphasizes technique, accuracy, and precision. Includes instrumentation bench and manual methods.

- Student will demonstrate and apply departmental procedures for safety according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate and explain the safe use and disposal of biohazardous materials.
- Student will explain and demonstrate the specimen processing and handling, criteria for specimen rejection, and use of laboratory information system (LIS).
- Student will demonstrate, by performance, the operation of automated or semi-automated instrumentation.
- Student will summarize and identify the test methods and principles learned during their rotation.
- Student will interpret and evaluate the chemistry and special chemistry values.
- Student will demonstrate professionalism in appearance and behavior while in the laboratory setting.

SLO: The Students will demonstrate knowledge of fundamental principles of Clinical Chemistry by obtaining a minimum score of 75% on the Performance Checklist (PCL) at the end of the clinical rotation.

MLT 120 Clinical Microbiology

Introduces microorganisms of medical microbiology with emphasis on the characteristics of clinically significant microorganisms and their biochemical profile, media for isolation, and identification methods for selected pathogens. Emphasizes identification methods, theories, and techniques used in basic bacteriology, parasitology, virology, and mycology.

- Student will demonstrate and apply the standard precautions as they apply in the Microbiology laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will list and describe the fields of study included in microbiology.

- Student will compare and contrast the organization of the microbiology department in a small and large laboratory.
- Student will describe the processes involved in an infection and how nosocomial infections are acquired.
- Student will identify and design a quality control program in the microbiology department.
- Student will design a system for proper specimen collection and transport for the microbiology department.
- Student will identify and describe clinically significant microorganisms noted in clinical microbiology laboratories.
- Student will define and organize a microorganism identification system.
- Student will describe and discuss the actions of antibiotics on microorganisms.
- Student will compare and contrast the various methods for susceptibility testing including advantages and disadvantages.
- Student will categorize the organisms that are required to be reported to the state's Department of Health Services and describe how this is accomplished.
- Student will list and describe the general characteristics of medically important fungi.
- Student will list and describe the general characteristics of medically important parasites.
- Student will compare and contrast laboratory protocols for viruses, Rickettsiae and anaerobic bacteria.
- Student will demonstrate and describe the local public health lab reporting requirement by selecting reportable organism, condition and submitting proper documentation.

SLO: Demonstrate basic knowledge and technical ability essential to the practice of Clinical Laboratory Science.

MLT 120L Clinical Microbiology Laboratory

Introduces various techniques and safety procedures in clinical microbiology. Emphasizes morphology and identification of common pathogenic organisms.

- Student will demonstrate and apply the standard precautions utilized in the microbiology laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate safe use and disposal of biohazardous materials.
- Student will identify and list the parts and functions of the light microscope and model proper use, and care of the microscope.
- Student will describe and demonstrate the basic principles of specimen collection.
- Student will demonstrate and describe the proper techniques for smear preparation and primary media inoculation.
- Student will list the stains used in the gram stain, differentiate, and compare their function.
- Student will compare and contrast normal flora versus pathogens of selected body sites as they appear on selective media.



- Student will demonstrate and describe the technical skills in interpreting laboratory, and identification and sensitivity testing for common classifications of microorganisms.
- Student will identify and describe the general characteristics of medically important fungi.
- Student will identify and describe the general characteristics of medically important parasites.
- Student will summarize the differences between the viruses, Rickettsiae and anaerobic bacteria.
- Student will demonstrate the technical skills required for microbial workup on specimens with mixed organisms.

SLO: Demonstrate error recognition and the ability to integrate and interpret analytical data and establish a course of action to solve problems.

MLT 121 Clinical Microbiology Practicum

Introduces clinical laboratory practice and experience in the department of microbiology. Emphasizes technique, accuracy, and precision. Includes instrumentation as well as bench and manual methods.

- Student will demonstrate and apply departmental procedures for safety according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate and explain the safe use and disposal of biohazardous materials.
- Student will explain and demonstrate the specimen processing and handling, criteria for specimen rejection, and use of laboratory information system (LIS).
- Student will demonstrate, by performance, the operation of automated or semi-automated instrumentation.
- Student will summarize and identify the test methods and principles learned during their rotation.
- Student will describe, discuss and perform quality control procedures involving media, equipment and sensitivity testing.
- Student will identify and describe current State and Federal regulations regarding microbiology specimens.
- Student will demonstrate professionalism in appearance and behavior while in the laboratory setting.

SLO: The Students will demonstrate knowledge of fundamental principles of Clinical Microbiology by obtaining a minimum score of 75% on the Performance Checklist (PCL) at the end of the clinical rotation.

MLT 130 Clinical Immunohematology

Introduces basic genetics, blood collection and preservation, blood group antigens and routine blood bank procedures. Includes transfusion safety and federal regulatory requirements. Compatibility testing and antibody identification are emphasized.

- Student will identify and describe blood banking and immunohematology principles.

- Student will compare and contrast the mode of inheritance of the major blood groups.
- Student will compare and contrast the basis of Rh nomenclature.
- Student will identify and describe the principle, and state the significance of the direct (DAT) and indirect antiglobulin test (IAT).
- Student will summarize the principle and significance of the antibody identification procedure.
- Student will compare and contrast the four major causes of transfusion reactions and the means of detection in the laboratory.
- Student will compare and contrast the mechanisms of sensitization in both Rh and ABO hemolytic disease of the newborn (HDN), and the effects of the antigen-antibody complex of the fetus.
- Student will identify and describe the preparation, storage requirements, effects of storage, and the use of blood components.
- Student will identify and explain the criteria for the selection and screening of blood donors.
- Student will compare and contrast the regulations and accrediting agencies of the blood donor centers and transfusion services.

SLO: Adhere to rules and regulations promoting workplace and patient safety and Continuous Quality Improvement (CQI).

MLT 130L Clinical Immunohematology Laboratory

Introduces the various techniques and safety procedures used in clinical blood bank laboratory. Emphasizes immunohematology procedures and techniques to measure analytes qualitatively and quantitatively.

- Student will demonstrate and apply the standard precautions utilized in the immunohematology laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate safe use and disposal of biohazardous materials.
- Student will demonstrate by performance, the acceptable immunohematology techniques which are essential for patient testing.
- Student will perform and interpret quality control procedures.
- Student will illustrate by diagramming, the mode of inheritance of the major blood groups.
- Student will compare and contrast the inheritance and antigen frequency of major blood groups, secretor blood group substances, and major antigens as related to different ethnic groups.
- Student will identify and describe the criteria for donor selection.
- Student will describe the principle and state the significance of the direct, and indirect antiglobulin test.
- Student will define and describe the principle and significance of the antibody identification procedure.



- Student will define and describe the routine prenatal testing and postnatal laboratory investigation to prevent Hemolytic disease of the Newborn (HDN).
- Student will compare and contrast the different methods and procedures utilized for compatibility testing.
- Student will describe and identify the procedure for processing various blood components.

SLO: Provide accurate patient results using laboratory standards.

MLT 131 Clinical Immunology and Immunoematology Practicum

Introduces clinical laboratory practice and experience in the department of serology and blood banking. Emphasizes technique, accuracy, and precision. Includes the introduction of different instrumentation as well as bench and manual methods.

- Student will demonstrate and apply departmental procedures for safety according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate and explain the safe use and disposal of biohazardous materials.
- Student will explain and demonstrate the specimen processing and handling, criteria for specimen rejection, and use of laboratory information system (LIS).
- Student will demonstrate, by performance, the operation of automated or semi-automated instrumentation.
- Student will interpret and evaluate the compatibility results and other serological values.
- Student will summarize and identify the test methods and principles learned during their rotation.
- Student will demonstrate and explain the procedures relating to blood and blood components following the guidelines of the clinical site.
- Student will demonstrate professionalism in appearance and behavior while in the laboratory setting.

SLO: The Students will demonstrate knowledge of fundamental principles of Clinical Immunology/Immunoematology by obtaining a minimum score of 75% on the Performance Checklist (PCL) at the end of the clinical rotation.

MLT 132 Clinical Immunology

Introduces the science of immunology and serology through the study of theories and processes related to natural body defenses. Includes the immune response and principles of antigen-antibody reactions.

- Student will describe and list the concepts of nonspecific and specific immunity.
- Student will identify and describe the immunologic responses involved in preventing and combating infections.



- Student will identify and explain the structure, function, and characteristics of immunoglobulins.
- Student will evaluate and describe the mechanisms that protect the body from disease or injury, and explain the parts and functions of each.
- Student will describe and compare the etiology, epidemiology, signs and symptoms, and diagnostic evaluation of various immune disorders.

SLO: Apply critical thinking skills to serological problems encountered, specifically, utilizing immunology principles and theories and applying these to results obtained.

- Student will describe and list the concepts of nonspecific and specific immunity.
- Student will identify and describe the immunologic responses involved in preventing and combating infections.
- Student will identify and explain the structure, function, and characteristics of immunoglobulins.
- Student will evaluate and describe the mechanisms that protect the body from disease or injury, and explain the parts and functions of each.
- Student will describe and compare the etiology, epidemiology, signs and symptoms, and diagnostic evaluation of various immune disorders.

SLO: Apply critical thinking skills to serological problems encountered, specifically, utilizing immunology principles and theories and applying these to results obtained.

MLT 132L Clinical Immunology Laboratory

Introduces the various techniques and safety procedures used in the clinical serology laboratory. Emphasizes serological procedures, and techniques to measure analytes qualitatively and quantitatively.

- Student will demonstrate and apply the standard precautions utilized in the immunology laboratory according to Occupational Safety and Health Administration (OSHA) mandates.
- Student will demonstrate safe use and disposal of biohazardous materials.
- Student will demonstrate by performance proper techniques of pipetting and preparing serial dilutions when conducting serological tests.
- Student will list specific diseases and describe the serological assays used to evaluate them.
- Student will perform and interpret, with 100 % accuracy, all serological assays.
- Student will demonstrate and apply principles of safety, quality assurance, and quality control in immunology/serology.

SLO: Provide accurate patient results using laboratory standards.



MLT 295 Selected Topics in Medical Laboratory Technology

Offered: Variable

Permits students to study relevant subjects within the field of medical laboratory technology. The specific objectives, methods of instruction and units of credit to be determined individually for projects proposed under this course description.

MLT 299 Independent Study

Limitation on Enrollment: Eligibility for Independent study.

Offered: Variable

Individual study or research in some area of medical laboratory technology of particular interest to the student and not included in regular courses of the College.

Admission Policy

An admission procedure has been instituted for the Medical Laboratory Technician Program. A separate application is required for this program and is on the SWC MLT website.

<https://www.swccd.edu/locations/higher-education-center-at-national-city/programs/medical-lab-tech-program/>

Applications are accepted from April 1, 2021 through June 25, 2021 for the Fall 2021 enrollment.

The program has prerequisite requirements for all potential students. Listed below are the specific science and required course prerequisites as well as additional prerequisites. All prerequisites must be completed before applying to the MLT program. *Courses in progress or not completed will be reviewed on a case-by-case basis and left to the Program Director’s discretion of acceptance.*

Science and Other Course Prerequisite Requirements

*Biol 260	Human Anatomy	4
*Biol 261	Principles of Human Physiology	4
*Biol 265	General Microbiology	4
*Chem 100	Introduction to General Chemistry	4
*Chem 110	Elementary Organic and Biological Chemistry	4
Comm 103 or 174 or 176	Oral or Interpersonal or Intercultural Communication	3
Math 60	Intermediate Algebra I	4
Engl 115	Reading Composition: Exposition and Argumentation.....	4
	TOTAL UNITS:	31

*The following criteria must be met for all ***SCIENCE COURSES:**

- **Every course must have a classroom based lab component completed**
- **A minimum of 4 units each with a “C” grade or better**
- **Only courses with credit/grade assigned will be accepted (no exam scores of any kind accepted as substitution)**
- **A cumulative grade point average of 2.70 or higher**
- **Courses must have been completed within eight years of enrollment semester**



Please note: A credit/no credit grade in science courses will not be accepted. All other pre-requisite courses must be completed with a “C” grade or better. Quarter units are not equal to semester units. Transfer courses completed in the quarter system must be converted to required semester units and must meet the minimum unit requirements.

Additional Prerequisites Required

All prerequisites must be completed before applying to the MLT program. *Courses in progress or not completed will be reviewed on a case-by-case basis and left to the Program Director’s discretion of acceptance.*

1. CA Phlebotomy Technician I or II (CPT I or CPT II) license. License **MUST** be current and kept current during MLT program enrollment. National certification is **not** accepted.
2. American Heart Association (AHA) Basic Life Support (BLS) certification. Certification **MUST** be current and kept current during MLT program enrollment.
3. A Student Education Plan (SEP) must be completed with a counselor prior to submitting your application. The SEP must be less than 6 months old at time of application to qualify.
4. Demonstrate college level reading proficiency by means of one of the following:
 - a. earn a “C” or better in English 158, English 115 or equivalent reading/English courses.
 - b. the equivalent as demonstrated by an approved petition (petition forms available from the Southwestern College Assessment Office).
 - c. a transcript indicating an earned associate or baccalaureate degree from a U.S. accredited institution.
5. Demonstrate requisite math proficiency by means of one of the following:
 - a. math proficiency as evidenced by earning a “C” or better in Math 60 or higher-numbered math course or equivalent. Math 100 or Math 115 does not meet the minimum program standards. Recommend Math 119 for transfer.
 - b. the equivalent as demonstrated by an approved petition (petition forms available from the Southwestern College Assessment Office).
 - c. a transcript indicating an earned associate or baccalaureate degree from a U.S. accredited institution.
6. All general education courses necessary for an Associate’s degree must be completed before applying to the MLT program. *Courses in progress or not completed will be reviewed on a case-by-case basis and left to the Program Director’s discretion of acceptance.*
 - All courses must be completed with a “C” grade or better
 - Quarter units are not equal to semester units. Transfer courses completed in the quarter system must be converted to required semester units and must meet the minimum unit requirements.
7. Official copies of transcripts from institutions other than Southwestern College are required as part of the application process. Official transcripts must be sent directly from the institution to SWC. You do need to include **ALL** unofficial transcripts with the application, including Southwestern College.



Additional items for application, if applicable:

1. Proof of Bachelor degree or higher via official transcripts
2. Lab experience as a phlebotomist or lab assistant – provide a copy of badge from employer and letter from HR verifying current employment

Selection Process

Acceptance into the MLT program is based on a point system. The application period is from **April 1, 2021 to June 25, 2021**. Do not send in your application early, it will not be accepted/considered. Late applications will also not be accepted/considered.

In the event two or more applicants have the same overall score, the science GPA will be used to determine placement (higher GPA receives placement first). If two or more applications have the same overall score and same science GPA, the order in which the applications were received will be used for acceptance. All applications are placed on a list in the order they are received. In the event that more than one application is received on any one day, a random drawing will be used to select the applicant's priority position that day.

All applications are initially reviewed when they are received and each application is recorded as complete or incomplete (incomplete includes ANY prerequisite work in progress that is not completed or applications received missing items or information required). After the application deadline, all complete applications will be reviewed and points awarded for specific categories (see MLT Score Card below). Students are accepted based on the number of points they receive for their application. Students are placed on a list from high to low scores and students are accepted starting with the highest score. The number of students accepted is dependent on the number of clinical site placements available, which can vary from year to year. If more students meet the admittance criteria than spaces are available, a list will be created by listing remaining applicants in order of points (high to low). These applicants will be added **only if** a student that was accepted declines their spot in the program. No students will be added once the semester begins. The waitlist does not stand from year-to-year; students must reapply the following year.

Incomplete applications will be reviewed **only** if there are any remaining spots in the program. If an application was received incomplete (missing final course grade, missing CPT, etc.) and the student receives a spot in the program, a conditional acceptance will be awarded. The conditional acceptance letter will have a deadline as to when the incomplete work must be completed or the student will be dismissed from the program.

Acceptance/denial letters will be sent via US mail to students at the end of the first full week of **July 2021**. If notification is not received from the MLT program by **July 9, 2021**, please call 619-216-6665 x4886. Southwestern College does not discriminate against any person affiliated with the District on the basis of age, ancestry, color, ethnic group identification, national origin, religion, race, gender or sex, sexual orientation, physical or mental disability, veteran status, or on the basis of these perceived characteristics, or based on association with a person or group with one or more of these actual or perceived characteristics.

It is required that all prerequisite requirements be completed in order to apply. Prerequisite work in progress or not completed will be reviewed on a case-by-case basis and left to the Program Director's discretion of acceptance.



MLT Applicant Score Card Fall 2021

Student Name: _____

<u>Category</u>	<u>Point Value</u>
Application received on-time: A. On time = 2 B. Not on-time (early or late) = 0	_____ / 2
Application complete by application deadline: A. Complete = 1 B. Incomplete = 0	_____ / 1
Science prerequisite GPA: A. 2.70-2.99 = 1 D. 3.60-3.89 = 4 B. 3.00-3.29 = 2 E. 3.90-4.00 = 5 C. 3.30-3.59 = 3	_____ / 5
All GE courses required complete: A. All required GE courses for Associate degree complete = 3 B. Missing one GE course for Associate degree = 1 C. Missing 2 or more GE courses for Associate degree = 0	_____ / 3
Demonstrate requisite English proficiency: A. ENG 158 or ENG 115 or equivalent = 1 B. No proficiency noted = 0	_____ / 1
Demonstrate requisite math proficiency A. MATH 60 or higher complete or equivalent, except MATH 100/115 = 1 B. No proficiency noted = 0	_____ / 1
Transcripts: A. Copies of ALL unofficial transcripts provided with application = 2 B. Missing copies of unofficial transcripts = 0	_____ / 2
Updated Student Education Plan (SEP) (within 6 months of application): A. SEP complete within 6 months of application = 1 B. SEP not completed within 6 months of application = 0	_____ / 1
MLT Program application for admission form: A. Completed in its entirety and accurate = 2 B. Not complete- missing information = 1 C. Not complete- any information missing and not accurate = 0	_____ / 2
CPT I or CPT II complete and valid: must provide copy of <u>license</u> with application A. CPTI or CPTII complete and valid = 5 B. Phlebotomy program complete without CPT I or CPT II license = 3 C. Phlebotomy program in progress = 1 D. No phlebotomy = 0	_____ / 5
American Heart Association (AHA) Basic Life Support (BLS) certification and valid: must provide copy of certification with application A. complete and valid = 2 B. No certification = 0	_____ / 2



Essay: A. One FULL page = 1 B. Answers provided to required information = 2 C. Typed/One inch margins/Proper Spacing/Signed = 1	_____ / 4
Signed Essential Functions: A. Received with student and witness signature and dated = 1 B. Missing any information required = 0	_____ / 1
Self-addressed stamped envelope: A. Provided = 1 B. Not provided = 0	_____ / 1
Student Handbook Acknowledgement: A. Received with all requested information completed = 2 B. Received missing any required information = 0	_____ / 2
MLT application verification: A. Signed and complete = 1 B. Not signed or not complete = 0	_____ / 1
Bonus Items: Points count toward total overall points for placement	
Possession of Bachelor degree or higher: <i>must provide transcripts of degree conferred at time of application</i> A. Any Bachelor degree or higher = 1 B. Any SCIENCE Bachelor degree or higher = 3	_____ / 3
<i>Clinical</i> lab experience (phlebotomist or lab assistant)- <i>must provide proof from employer (HR) with proof of length of experience</i> A. Full 1 year clinical lab experience (with proof) = 1 B. 2-3 years clinical lab experience (with proof) = 2 C. >3 years clinical lab experience (with proof) = 3	_____ / 3
Total Required Points	_____ / 34
Total Bonus Points	_____ / 10
Total Points	_____ / 34

This scorecard is utilized when evaluating MLT student applications. Points are awarded based on the criteria for each category. All points are added up and students receive an overall score. The overall score is used to place students in order from highest to lowest scores. Students are accepted from the highest score down until all spots have been filled (this number is dependent on the number of clinical sites available and can vary from year to year).

There is no waiting list for the MLT program. Should a spot open up in the program PRIOR to the start of the semester the acceptance will continue down the score line. Students not accepted must reapply each year to the program.

Student Name: _____ Date Received: _____
 Scorer Signature: _____ Date: _____
 Program Director Signature: _____ Date: _____



Requirements Completed After Acceptance

Once admitted to the Medical Laboratory Technician Program, you must provide verification of the following: Applicable forms and deadlines will be provided at the mandatory orientation.

1. Hepatitis B Immunity Verification
2. Tuberculosis Screening
3. FLU Vaccine
4. H1N1 Vaccine (may not apply to all clinical affiliates)
5. Diphtheria (Option Tdap- Tetanus, Diphtheria and Pertussis)
6. Rubella and Rubella Immunity Verification or MMR (Measles, Mumps, Rubella)
7. Varicella (Chicken pox) vaccine or titer
8. Physical Health Examination
9. Malpractice Insurance (Purchased by student each Fall semester)
10. ***Background check/drug screen: Students will be unable to attend clinical facilities for specified reasons, including the following convictions:
Murder, Felony assault, Sexual offenses/sexual assault, abuse, Felony drug and alcohol offenses (without certificate of rehabilitation), other felonies involving weapons and/or violent crimes, Felony theft, Fraud. Final placement status based on background check information is the clinical sites determination. No Dilute Urine- the urine sample must have yellow color to it or may be rejected as dilute and the facility will not accept the student for clinical placement. The MLT program may not be able to accommodate (keep) a student if the facility will not accept them due to background issues or urine drug screen issues. Misdemeanor convictions will be reviewed by the program director.
*A prescription card for medical marijuana will not be permitted as reason for positive drug screen.**
11. SWC Student ID badge

Orientation

All new MLT students will be required to attend a **mandatory** orientation on **July 21, 2021 from 5:00pm-7:30pm** at the Higher Education Center in National City. Specific meeting place or Zoom link will be sent to the students via their SWC email. Information regarding textbooks, schedules, immunizations, background check and drug screen, etc. will be discussed at orientation.

Occupational Hazards

Occupational hazards for the field of laboratory medicine may include, but are not limited to exposure to infectious diseases such as AIDS or hepatitis, exposure to hazardous chemicals or substances, accidental injury, exposure to blood borne pathogens, exposure to radiation and allergic reactions to latex, or other chemical agents.

Tuition and Fees with Refund Policy

For students who meet the California residency requirement, the cost of the **Medical Laboratory Technician Program only** (not including pre-requisite requirements or general education courses) is currently *estimated* to be two thousand one hundred dollars (\$2,100).

You can anticipate the following expenses during your program of study. These amounts are **estimates** only.



- Tuition: \$2,100.00 (this does not include prerequisites or general education requirements)
- Textbooks: \$ 1,500.00
- MLT National Exam fee: \$ 225.00
- California MLT Licensure application fee: \$ 235.00
- Uniforms, shoes, lab coats: \$ 350.00
- Misc. (Parking permit, immunizations, CPR, background check, Malpractice insurance, ID badge): \$ 520.00

Living expenses and cost of transportation to campus and clinical facilities are not included in this estimated cost.

REFUNDS: Any questions concerning the refund policy should be addressed to the Admissions department.

Some financial assistance is available through the Financial Aid Office. Applications for assistance should be filed early (priority filing is the first week of March). Applications are available at the Financial Aid Office or the Higher Education Center. It is recommended that the student not work while they are enrolled in the program.

Grievance Procedures

The student is urged to consult with their Program Director concerning any problems or grievances that they might have while in the course of their training. The Program Director will attempt to remedy any problems or mediate disputes that occur. If the Program Director is unable to address the issue to the satisfaction of the student, the student may speak to the Dean at the Higher Education at National City. However, if the student is not satisfied with these attempts to mediate the dispute, Southwestern College has set up the Student Grievance Procedure. For information on this process, refer to the current Southwestern College catalog.

Decisions made by the Southwestern College MLT Program can also be appealed using the NAACLS Complaint Procedure. Refer to the NAACLS website: www.naacls.org for information.

Rules and Regulations

Located in the Southwestern College catalog.

Causes for Dismissal

Located in the Southwestern College catalog.

Student Record Retention

Student records specific to the MLT program will be maintained for three years as hard copy then scanned and kept for an additional seven years in the MLT office. Student records containing student name, grades and credits and dates of admission and completion, are retained permanently by Southwestern College.

Textbooks

Required

Textbooks listed may need to be updated prior to the start of class. **This is a list for reference only. Do not purchase textbooks until after mandatory meeting, and only purchase texts required for the current semester enrolled.*

- Jarreau, Patsy. Clinical Laboratory Science Review: A Bottom Line Approach. 5th ed. New Orleans: LSUMC Foundation, 2015. ISBN: 978-0967043425
- Strasinger, S. K., Di Lorenzo, M. S. Urinalysis and Body Fluids. 6th ed. Annandale, Virginia: F. A. Davis Company, 2013. ISBN: 978-0803639201
- Turgeon, Mary L. Clinical Laboratory Science Concepts, Procedures, and Clinical Applications. 7th ed. Maryland Heights: Elsevier, 2016. ISBN: 978-0323225458
- Harmening, Denise M. Clinical Hematology and Fundamentals of Hemostasis. 5th ed. Philadelphia: F.A. Davis Company, 2008. ISBN: 9780803617322
- Burtis, C. A., Bruns, D. E. Tietz Fundamentals of Clinical Chemistry and Molecular Diagnostics. 7th ed. Durham, NC: Saunders, 2017. ISBN: 978-1-4557-4165-6
- Turgeon, Mary L. Immunology & Serology in Laboratory Medicine. 6th ed. St. Louis, MO: Elsevier, 2017. ISBN: 9780323431477
- ASCP Board of Certification Staff. BOC Study Guide Enhanced Edition: Clinical Laboratory Examinations. 6th ed. United States: American Society for Clinical Pathology, 2019. ISBN: 978-0-89189-6609
- Tille, P. Baileys and Scotts Diagnostic Microbiology. 13th Edition. St. Louis, MO: Mosby Elsevier, 2016. ISBN 9780323354820
- Harmening, Denise M. Modern Blood Banking & Transfusion Practices. 7th ed. Philadelphia: F. A. Davis Company, 2018. ISBN: 0803668880
- MediaLab, LabCE Exam Simulator
https://www.labce.com/ascp_cls_certification_exam_simulator.aspx
Specific package: Exam Simulator for MLS, MT, and MLT Exams (\$75.00)

Optional

- Rodak, B., Carr J. Clinical Hematology Atlas. 5th ed. St. Louis, MO: Elsevier, 2017. ISBN: 978-0-323-32249-2
- Fung, M., Grossman, B. J., Hillyer, C. D., Westhoff, C. M. Technical Manual of American Association of Blood Banks. 18th ed. Bethesda, MD: American Association of Blood Banks (AABB), 2014. ISBN: 978-1563958885
- Schumann, G.B. and Sheryl K. Friedman. Wet Urinalysis: Interpretations, Correlations and Implications. 1st Edition. Chicago: American Society for Clinical Pathology, 2003. ISBN: 0891894438
- Willis, L., clinical editor. Fluids and Electrolytes Made Incredibly Easy!. 6th ed. Philadelphia: Lippincott Williams & Wilkins, 2015. ISBN: 978-1451193961
- Bettelheim, Frederick A., Brown, W. H., Campbell, M. K. Introduction to General, Organic and Biochemistry. 11th ed. Cengage Learning, 2016. ISBN: 9781285869759



Course Sequence Policy

First Semester

MLT 80	Introduction to Clinical Laboratory Profession	2.0
MLT 100	Clinical Hematology/Coagulation	3.0
MLT 100L	Clinical Hematology/Coagulation Lab	1.0
MLT 110	Clinical Chemistry I	3.0
MLT 110L	Clinical Chemistry I Lab	1.0
MLT 90	Clinical Urinalysis and Body Fluids	1.0
MLT 90L	Clinical Urinalysis and Body Fluids Lab	0.5
MLT 132	Clinical Immunology	1.0
MLT 132L	Clinical Immunology Laboratory	0.5

Second Semester

MLT 102	Clinical Hematology/Coagulation/ Urinalysis and Body Fluids/ Practicum	5.0
MLT 111	Clinical Chemistry II	3.0
MLT 111L	Clinical Chemistry II Lab	1.0
MLT 120	Clinical Microbiology	3.0
MLT 120L	Clinical Microbiology Lab	1.0

Third Semester (Summer Session II)

MLT 130	Clinical Immunohematology	3.0
MLT 130L	Clinical Immunohematology Lab	1.0
MLT 112	Clinical Chemistry Practicum	4.0

Fourth Semester

MLT 121	Clinical Microbiology Practicum	5.0
MLT 131	Clinical Immunology/Immunohematology Practicum	4.0
MLT 79	MLT Certification/Licensure Examination Preparation	<u>2.0</u>
		45.0

All Medical Laboratory Technician Courses are offered in the above sequence. Each course builds upon the previous and concurrent courses taken; therefore, courses *cannot* be taken out of sequence. Each Medical Laboratory Technician course is offered only once during the academic year. Classroom and laboratory based courses are Monday-Friday, evening only. Practicum coursework is full-time day hours (40 hours per week) for the length of the course.

Retention Policy

A student is given two attempts within the program to achieve success. Students who fail to earn a 75% (“C”) or better in any Medical Laboratory Technician course will be dismissed from the program effective on the last day of that course, and must reapply for admission. Once a completed application is received, readmission will be based upon a space-available basis. Students may be readmitted only one time. A second failure to earn 75% (“C”) or better in any Medical Laboratory Technician course will result in automatic dismissal from the program with no option for readmission. Failure to earn a 75% (“C”) or better in two (2) or more Medical Laboratory Technician courses in the same semester will result in automatic dismissal from the program with no option for readmission. Self-withdrawal from the program is considered an attempt.



A student who fails to earn a 75% (“C”) or better in any Medical Laboratory Technician course must meet with the faculty and the Director of the Medical Laboratory Technician Program within one week. The student may also meet with the Dean of the Higher Education Center, National City.

After a second failure to earn a 75% (“C”) or better in any Medical Laboratory Technician course, the student is encouraged to meet with a counselor and the Director of the Medical Laboratory Technician Program to discuss alternative educational and career opportunities.

Students who have been out of the program for two semesters or more will be subject to evaluation of skills and knowledge to assess that the retention of content is sufficient to ensure safe practice when they re-enter the program. This evaluation may include written testing and/or actual clinical practice. Auditing of some courses may be necessary before readmission.

Grading Policy

The Grading System employed in the Medical Laboratory Technician Program is a grading scale. Courses in the Medical Laboratory Technician Program are not offered credit/no credit.

The Medical Laboratory Technician Program percentages for grades are as follows:

A	91-100%
B	82-90.9%
C	75-81.9%
D	70-74.9%
F	69.9% and below

A grade of 75% (“C”) or better is required in all Medical Laboratory Technician courses for progression in the Medical Laboratory Technician Program and to graduate.

Withdrawal Policy

Students that withdraw from the program for personal reasons must reapply for admission. Once a properly completed application is received, the student will be placed in the applicant pool and evaluated as a new applicant. Students who withdraw from the program are encouraged to make an appointment with a counselor and the Director of the program. Personal, academic, and career counseling is always available to the student and may be given at that time.

Graduation Requirements

Please note that Southwestern College graduation requirements need to be met before completion of the program. *It is required that you complete the graduation requirements along with the prerequisites of the Medical Laboratory Technician Program.* Students must consult a counselor to assist them in developing a Student Educational Plan (SEP) so that all requirements are met on schedule. Call the Higher Education Center in National City at (619) 216-6665 ext. 4851 for an appointment. You must have SWC student ID to make an appointment.

Upon completion of all requirements, the student will receive an Associate of Science degree from Southwestern College, and be eligible to apply for the American Society for Clinical Pathology (ASCP) examination to practice as a Medical Laboratory Technician.

Issuing of a degree or certificate IS NOT contingent upon the student passing any type of external certification or licensure examination. Additionally, the student must apply to the



State of California, Department of Health Services Laboratory Field Services (LFS) Division in order to receive state licensure.

Persons with Disabilities

To request alternate forms of this application or for assistance in requesting accommodations for disabilities, contact Disability Supports Services at (619) 482-6512.

MLT Faculty and Staff

Name	Office #	Phone #	E-mail Address
Deanna Reinacher, Ed. M., MT(ASCP), CLS MLT Program Director All Externship Courses	7101C	(619)216-6673	dreinacher@swccd.edu
Martha Martinez-Tribolet Program Technician	7101C	(619)216-6665 X4886	mtribolet@swccd.edu
Ron Bajet, MBA, MT(ASCP), CLS Clinical Hematology/Coagulation Clinical Microbiology	7110	(619)216-6665 x4859	rbajet@swccd.edu
Myrna Gurfinkiel, MA, MT(ASCP), CLS Clinical Chemistry I and II	7110	(619)216-6665 x4859	mgurfinkiel@swccd.edu
Milton Lewis, MS, MLS(ASCP)^{cm}, CLS Clinical Immunology	7110	(619)216-6665 x4859	mlewis@swccd.edu
John Stephan, MLS(ASCP), SBB Introduction to Clinical Laboratory Profession Clinical Immunohematology	7110	(619)216-6665 x4859	jstephan@swccd.edu
Charles Vasquez, MLS(ASCP), CLS Clinical Urinalysis and Body Fluids	7110	(619)216-6665 x4859	cvasquez@swccd.edu

*Appointments are required.

Dress Code Policy and General Regulations at Clinical Sites

The purpose of the dress code policy is to clarify prudent professional dress behavior and specify clinical dress requirements. These standards are the minimum. If a clinical site chooses to have more stringent requirements, the student is obligated to comply. If the clinical site is less stringent, the student will comply as stated below.

The Medical Laboratory Technician is a representative of Southwestern College and a guest in the clinical site. Each student is expected to demonstrate professionalism through appropriate attitude, personal appearance, and performance of clinical responsibilities.

1. **CLOTHES** – Clean and unwrinkled scrubs covered with a white lab coat. Most uniform shops carry uniforms appropriate to the health care setting. **Street clothes are not permitted at clinical sites.**
2. **LAB COAT** – A lab coat and nametag must be worn at all times in the laboratory. Your nametag should be worn in all testing areas and non-testing areas.

3. **SHOES** - Sandals or open toe shoes are not permitted. Shoes with soft soles to prevent slips/falls on hard surface floors are recommended.
4. **COSMETICS** – Facial cosmetics may be used with discretion.
5. **NAILS** – No artificial nails are to be worn. Nails should be kept short and clean.
6. **HAIR** – Hair should be clean and neat. Hair that is longer than shoulder length must be pulled back and secured so that it does not interfere with or become a hazard while working. At no time should the hair interfere with or obstruct the student’s ability to see clearly (regardless of length).
7. **PERFUME** – Heavy (strong) perfume or cologne is not permitted; it is recommended that no fragrances be used.
8. **SMOKING** – Smoking is not permitted in any of the clinical sites, student labs or classrooms.
9. **JEWELRY** – Wedding bands, wristwatches, ear studs for pierced ears are acceptable. No long decorative chains, necklaces or bracelets.
10. **STANDARD PRECAUTIONS** - Gloves must be worn at all times when working with biological materials. Protective eyewear, if glasses are not worn, will be worn at all times when working with any procedure or equipment that could create an aerosol.
11. **HYGIENE** – Good personal hygiene is expected and encouraged at all times.
12. **ID Badge** – Issued SWC student ID badge will be worn at all times while participating in any activities involved with the Medical Laboratory Technician program.
13. Any clothes that serve as the first line of defense (surgical gown, lab coat, gloves, etc.) during testing procedures or in the lab are **not** allowed to be worn in public or non-testing areas. These should stay on site, unless to be laundered, if not supplied by the hospital.
14. A student arriving to class or lab dressed improperly will be asked to leave until they meet the dress standards. Absences due to improper dress are an unexcused absence.



Clinical Affiliates

*All students will be supervised by qualified personnel during all clinical rotations.
Students do not get to choose their externship location.

Scripps Mercy Hospital, Chula Vista 435 H Street Chula Vista, CA 91910 Phone: (619) 691-7430	Scripps Memorial Hospital La Jolla 9888 Genesee Ave La Jolla, CA 92037 Phone: (858) 626-4123
Scripps Clinic Medical Laboratory Services in Sorrento Mesa 9535 Waples Street San Diego, CA 92121 (858) 554-9688	Sharp Chula Vista Medical Center 751 Medical Center Ct Chula Vista, CA 91911 Phone: (619) 502-5800
Palomar Medical Center-Escondido 2185 W Citracado Pkwy Escondido, CA 92029 Phone: (442) 281-5000	Palomar Medical Center- Poway 15615 Pomerado Road Poway, CA 92064 Phone: (858) 613-4000
Paradise Valley Hospital 2400 E. Fourth St National City, CA 91950 Phone: (619) 470-4321	Alvarado Hospital Medical Center 6655 Alvarado Road San Diego, CA 92120 Phone: (619) 287-3270
Rady Children's Hospital 3020 Children's Way San Diego, CA 92123 Phone: (858) 576-1700	Kaiser Permanente San Diego Medical Center 9455 Clairemont Mesa Blvd San Diego, CA 92123 Phone: (858) 266-5000
Family Health Centers of San Diego 823 Gateway Center Way San Diego, CA 92102 Phone: (619) 515-2321	Naval Medical Center San Diego 34800 Bob Wilson Dr San Diego, CA 92134-5000 Phone: (619) 532-9300
Sharp Rees-Stealy Medical Group 1400 E. Palomar Chula Vista, CA 91913 Phone: (619) 446-1562	Sharp Rees-Stealy Medical Group 300 Fir Street San Diego, CA 92101 (619) 446-1562
San Diego Blood Bank 3636 Gateway Center Ave. Suite 100 San Diego, CA 92102 Phone: (619) 400-8296	<i>*Not all sites may be accepting students each year or for every externship rotation.</i>

Patient Confidentiality

The Health Insurance Portability and Accountability Act of 1996 (HIPPA) is a federal law that defines patients' rights to privacy and to control how their personal healthcare information is used. The law specifies who can access patients' protected, identifiable health information and when disclosure of this information is permitted. At each of the clinical affiliate facilities, every student will be required to review, understand and practice the confidentiality and privacy of every patient as prescribed by the law.



Students will be oriented to facility policies and will observe all procedures related to patient confidentiality and release of information during clinical rotations. Students are also cautioned to maintain the confidentiality of their peers, instructors, clinical staff, and clinical facilities. Students will keep personal beliefs and opinions a private matter. A breach in the confidentiality policy may be cause for immediate dismissal from the program.

Standards of Student Conduct

In joining the academic community, the student enjoys the right and shares the responsibility of exercising the freedom to learn. Like other members of the academic community, each student's conduct is expected to be in accordance with the standards of the college that are designed to promote its educational purposes. A charge of misconduct may be imposed upon a student for violating provisions of college policy/procedure, state education statutes and regulations and/or administrative codes. Where a student is subject to charges of misconduct, such charges shall be processed in accordance with the Southwestern Community College District's policy and procedure No. 5500.

The Superintendent/President's designee shall, in consultation with the Academic Senate, establish procedures for the imposition of discipline of students in accordance with the requirements for due process of the Federal and State law and regulations. The procedures shall clearly define the conduct that is subject to discipline and shall identify potential disciplinary actions including, but not limited to, the removal, suspension or expulsion of a student. The procedures shall be made widely available to students through the College Catalog and other means.

Disciplinary Actions Violations

1. Cheating, or engaging in other academic dishonesty including copying from another's work; discussion prohibited by the instructor; obtaining exam copies without permission; and using notes, other information, or devices that have been prohibited.
2. Plagiarism in individual or group work or in a student publication, including the act of taking the ideas, words or specific substantive materials of another and offering them as one's own without giving credit to the sources.
3. Unauthorized preparation, giving, selling, transfer, distribution, or publication, for any commercial purpose, of any contemporaneous recording of an academic presentation in a classroom or equivalent site of instruction, including but not limited to handwritten or typewritten class notes.
4. Disruptive behavior, willful disobedience or the open and persistent defiance of the authority of, or persistent abuse of, college personnel, which may or may not include habitual profanity or vulgarity.
5. Assault or battery upon another person or any threat of force or violence or causing, attempting to cause or threatening to cause physical injury to another person.
6. Possession, sale or otherwise furnishing any firearm, knife, explosive, or other dangerous object, including, but not limited to, any facsimile firearm, knife or explosive, unless, in

the case of possession of any object of this type, the student has obtained written permission to possess the item from the Superintendent/ President or his/her designee.

7. Unlawful possession, use, sale, offer to sell, furnishing, or being under the influence of any controlled substance; alcoholic beverage, or intoxicant of any kind; Unlawful possession of offering, arranging or negotiating the sale of any drug paraphernalia.
8. Committing or attempting to commit robbery or extortion.
9. Causing or attempting to cause damage and/or defacing College District property or private property on College District controlled facilities.
10. Theft, attempted theft, or knowingly receiving stolen College District property or private property.
11. Willful or persistent smoking in any area where smoking has been prohibited by law or by regulation of the College District.
12. Engaging in harassing or discriminatory behavior based on race, sex, gender, religion, sexual orientation, age, national origin, disability, or any other status protected by law.
13. Engaging in intimidating conduct or bullying against another student through words or actions, including direct physical contact; verbal assaults, such as teasing or name-calling; social isolation or manipulation; and cyber-bullying.
14. Committing sexual harassment as defined by law or by College District policies and procedures.
15. Willful misconduct which results in injury or death to a student or to college personnel or which results in cutting, defacing, or other injury to any real or personal property owned by the College District.
16. Misrepresentation and/or impersonation including arranging for or allowing another individual to impersonate or otherwise misrepresent the student, in person or in an online environment.
17. Dishonesty, forgery, alteration or misuse of college documents, records or identification, or knowingly furnishing false information to the College District.
18. Unauthorized entry upon or use of College District facilities.
19. Lewd, indecent or obscene conduct or gestures on College District-owned or controlled property, or at College District sponsored or supervised functions.
20. Engaging in expression which is obscene; libelous, or slanderous; or that incites students as to create a clear and present danger of the commission of unlawful acts on any College District premises, or the violation of lawful College District administrative procedures, or the substantial disruption of the orderly operation of the College District.
21. Engaging in physical or verbal disruption of instructional or student services activities, administrative procedures, public service functions, authorized curricular or co-curricular activities or prevention of authorization guests from carrying out the purpose for which they are College District property.



22. Engaging in physical or verbal intimidation or harassment of such severity or pervasiveness as to have the purpose or effect of unreasonably interfering with a student's academic performance, or College District employee's work performance, or of creating an intimidating, hostile or offensive educational or work environment.
23. Violation of Board policies and/or procedures governing the use of student user accounts, computers, and telecommunication devices, including but not limited to the unauthorized entry, opening or viewing of a file; the unauthorized use of another individual's identification and password; arranging for, allowing, and/or impersonation of one person by another; sending obscene or abusive messages or files; and/or use of computing facilities to interfere with the work of another student or employee of the College District.
24. Violation of a duly issued restraining order, stalking, and/or a pattern of conduct with intent to follow, alarm, or harass another person, and/or which causes that person to reasonably fear for his or her safety, and where the pattern of conduct persisted after the person has demanded that the pattern of conduct cease.
25. Persistent, serious misconduct where other means of correction have failed to bring about proper conduct or where the presence of the student causes a continuing danger to the physical safety of students or others.
26. Violation of college regulations or state laws.

Attendance Requirement (Didactic Training)

The MLT Program student must meet the established attendance requirements of Southwestern College. Please refer to the most current Southwestern College catalog for specific information. All didactic courses are evening only. In addition, the MLT program requires that students accrue no more than three (3) absences *total* within one semester. Missing more than three (3) days *total* in one semester may result in dismissal from the program. Maxing out absences in any two semesters will result in dismissal from the program with no opportunity for reenrollment. Any student that will be late or must leave early must notify the faculty member ahead of time.

Attendance Requirement (Clinical Externship)

The Medical Laboratory Technician student will attend **all** clinical rotations/days as assigned. Absences and leaving early are not acceptable. Personal appointments, scheduling personal plans, etc. are not allowed during scheduled clinical hours/days.

Excused absences include:

1. personal illness
2. death in the immediate family
3. the discretion of the clinical instructor and the Medical Laboratory Technician Program Director (prior permission required)

Unexcused absences include:

1. Transportation issues
2. Leaving early
3. Arriving late



In the event of an excused absence, the make-up time is not allowed on a holiday, weekend, or using any potential extra days between externship/s and class/es.

Attendance Rules:

1. Any three leave early or arrive late combinations is equal to one unexcused absence.
2. One unexcused absence and two excused absences combined will result in dismissal from the program, with re-entry at a later date only if space is available.
3. Three excused absences will result in counseling and potential dismissal from the program, with re-entry only if space is available.

ALL makeup time MUST be pre-approved by the clinical site and the program director. It is the student's responsibility to notify their assigned clinical instructor and MLT program director, prior to the start of a clinical day, if the student is going to be absent or late. The student must speak to an individual in the lab (preferably the clinical instructor); leaving a message on voicemail is unacceptable. An email must be sent to the program director within one hour of the clinical start time with reason for absence. Failure to telephone the clinical instructor and email the Program Director will weigh heavily on the clinical rotation evaluation grade.

If any MLT core course grade's (current or past) are failing, a clinical rotation will not be granted. The MLT Program Director will not accept a student if a clinical rotation cannot be **secured**. Laboratory tests that are not performed in all clinical affiliates (e.g. if only one laboratory performs the test) are given emphasis in the student laboratory while students are still taking their didactic courses.

The clinical rotations are designed to help the student develop technical and professional skills for the career. Clinical rotations are to be viewed as a job, therefore, no-shows, excessive absences and unprofessional behavior will not be tolerated.

****The clinical rotations are highly structured; therefore, absences may result in a student being dropped from a particular rotation; resulting in enrollment at another time, only if space is available.****

IN THE EVENT OF A CLINICAL ABSENCE, THE STUDENT MUST:

1. **Contact the clinical faculty before the clinical starting time. *THIS IS YOUR #1 PRIORITY!* Asking a fellow student to inform the instructor of the absence is *not* acceptable. The student must inform the instructor personally. Do not leave voicemail messages. You must speak to a person.**
2. **Contact the MLT program director *no later than one hour* after the scheduled starting time for your scheduled shift. Email to dreinacher@swccd.edu . Calls can be made to (619) 216-6673. Leave a message on voice-mail. An email **MUST** be received by the program director.**
3. **In the event of a catastrophic situation (death in the immediate family, hospitalization, etc.), and you cannot attend clinicals, the program director must be notified *immediately*.**



4. *If you will be late for clinicals or need to leave early, you must notify your clinical faculty and the Program Director.*
5. *No scheduled personal appointments, time off, etc. are to be made during clinical hours.*

Due to the nature of our courses, each class/rotation serves as a building block of knowledge for the next class/rotation. Each student is responsible for all assignments, materials, examinations etc. when absent from class. Make-up exercises or alternative learning experiences will be planned according to the limits set by the program director. As a reminder, personal electronic equipment is not allowed during lectures, labs and clinical practicums.

Service Work

Students will not be used to substitute for regular employees as part of their training. Students of the MLT Program should be aware that any service work performed at any of our affiliates is:

- Not required (it is your decision to do)
- Cannot occur during the training hours
- Should not interfere with your progression through the MLT program
- Cannot be counted towards your training hours requirement

Examples of service work...

- Working as a phlebotomist, specimen processor, lab aide while completing MLT practicum
- Working in the student laboratory as a student worker
- Continuing to work pm shifts or weekends in a clinical affiliate during your progression through the MLT program

During clinical practica: Students will not be used to substitute for regular employees as part of their training. Service work by students in clinical settings outside of academic hours must be noncompulsory.

Students should apply themselves to the program first. Financial needs requiring the student to work long hours outside the program should be discussed with the Program Director as scholarships or financial aid may be in order. Please refer to Southwestern College's Financial Aid office for assistance.

Policies and Procedures When Applied Education Cannot Be Guaranteed

When a student enrolled in the program cannot be placed at an externship site for unforeseen circumstances or situations that are beyond control, the first step would be to reach out to current sites for placement. A second avenue would be to try to acquire another new site for placement. When these avenues fail to provide the student with placement, the student will follow the Incomplete Grade policy explained in the college catalog.

Health Care

All First Aid kits and emergency kits are located within the Dental Hygiene Clinic. For minor injuries, the lab faculty member should accompany the injured student to the clinic and provide necessary treatment. Limited health care services may be available in the Higher Education Center on days and times the Campus Nurse is scheduled. If additional care is necessary, the student will be instructed to seek treatment at the Sharp Rees-Stealy Clinic, which is contracted



with Southwestern College. First aid that is more extensive or emergency treatment may be necessary at a local hospital. Paramedics will be summoned as needed, depending on the severity of the problem.

At the clinical setting students will be afforded health care at those facilities, and they are covered under Southwestern College's Workers Compensation insurance. A 2-page workers compensation form is to be submitted to Risk Management within 24 hours of any incident. If follow up care is needed, then the student is to go to Sharp Rees-Stealy Clinic. The insurance carrier should forward any medical bills received because of the incident to the risk management department for payment.

Essential Functions and Technical Standards

Health Sciences programs establish technical standards and essential functions to insure that students have the abilities required to participate and potentially be successful in all aspects of the respective programs. Students are required to meet technical standards and essential functions for the Medical Laboratory Technology program as indicated below. Satisfactory completion of the MLT Program and successful employment following graduation demands your ability to meet the following requirements. If you are uncertain as to your ability with any of these essential functions, please consult with the MLT Program Director.

1. **Observational** - Ability to participate actively in all demonstrations, laboratory activities and clinical experiences in the professional program component. Such observation and information requires functional use of visual, auditory and somatic sensations.
 - a. Observe laboratory demonstrations in which biological (i.e., body fluids, culture materials, tissue sections, and cellular specimens) are tested for their biochemical, hematological, immunological, and histochemical components.
 - b. Characterize the color, odor, clarity, and viscosity of biological, reagents, or chemical reaction products.
 - c. Employ a clinical grade binocular microscope to discriminate among fine structural and color (hue, shading, and intensity) differences of microscopic specimens.
 - d. Read and comprehend text, numbers, and graphs displayed in print and on a video monitor.
2. **Movement** - Sufficient motor ability to execute the movement and skills required for safe and effective performance of duties.
 - a. Move freely and safely about a laboratory.
 - b. Reach laboratory bench tops and shelves, patients lying in hospital beds or patients seated in specimen collection furniture.
 - c. Travel to numerous clinical laboratory sites for practical experience.
 - d. Perform moderately taxing continuous physical work, often requiring prolonged sitting or standing, over several hours.
 - e. Maneuver phlebotomy and culture acquisition equipment to safely collect valid laboratory samples.
 - f. Possess finger and manual dexterity necessary to control laboratory equipment (i.e. pipettes, inoculating loops, test tubes) and adjust instruments to perform laboratory procedures.
 - g. Use a computer keyboard to operate laboratory instruments and to calculate, record, evaluate, and transmit laboratory information.
3. **Communication** - Ability to communicate effectively in English using verbal, non-verbal and written formats with faculty, other students, clients, families and all members of the healthcare team.
 - a. Read and comprehend technical and professional materials (i.e. textbooks, magazine and journal articles, handbooks, and instruction manuals).
 - b. Follow verbal and written instructions in order to correctly and independently perform laboratory test procedures.
 - c. Clearly instruct patients prior to specimen collection.

- d. Effectively, confidentially, and sensitively converse with patients regarding laboratory tests.
 - e. Communicate with faculty members, fellow students, staff, and other health care professionals verbally and in a recorded format (writing, typing, graphics, or telecommunication).
 - f. Transmit information to clients, fellow students, faculty and staff, and members of the healthcare team.
 - g. Independently prepare papers, prepare laboratory reports, and take paper, computer, and laboratory practical examinations.
4. **Intellectual** - Ability to collect, interpret and integrate information and make decisions.
- a. Possess intellectual skills: comprehension, measurement, mathematical calculation, reasoning, integration, analysis, comparison, self-expression, and criticism.
 - b. Be able to exercise sufficient judgment to recognize and correct performance deviations.
 - c. Apply knowledge to new situations and to problem solving scenarios.
5. **Behavioral** - Possess the emotional health and stability required for full utilization of the student's intellectual abilities, the exercise of professional judgment, the prompt completion of all academic and patient care responsibilities and the development of mature, sensitive and effective relationships with faculty, fellow students, clinical instructors, patients and other members of the healthcare team.
- a. Manage heavy academic schedules and deadlines.
 - b. Be able to manage the use of time and be able to systemize actions in order to complete professional and technical tasks within realistic constraints.
 - c. Possess the emotional health necessary to effectively employ intellect and exercise appropriate judgment under conditions of physical and emotional stress.
 - d. Be able to provide professional and technical services while experiencing the stresses of task-related uncertainty (i.e. ambiguous test ordering, ambivalent test interpretation), emergent demands (i.e. "stat" test orders), and a distracting environment (i.e. high noise levels, crowding, complex visual stimuli).
 - e. Be flexible and creative and adapt to professional and technical change.
 - f. Recognize potentially hazardous materials, equipment, and situations and proceed safely in order to minimize risk of injury to patients, self, and nearby individuals.
 - g. Adapt to working with unpleasant biologicals.
 - h. Support and promote the activities of fellow students and of health care professionals. Promotion of peers helps furnish a team approach to learning, task completion, problem solving, and patient care.
 - i. Be honest, compassionate, ethical and responsible. Accept responsibility and accountability for one's own actions. The student must be forthright about errors or uncertainty. The student must be able to critically evaluate his or her own performance, accept constructive criticism, and look for ways to improve performance (i.e. participate in enriched educational activities). The student must be able to evaluate the performance of fellow students and tactfully offer constructive comments.

(Adapted from: Fritsma, G.A., Fiorella B. J., and Murphey, M. Essential Requirements for Clinical Laboratory Science. CLS 1996. Vol. 9, pp 40-43)



MLT Program Essential Functions Acknowledgment

I certify that I have read and understand the **2021/2022** *MLT Program Essential Requirements* for admission and graduation and that I meet each of the functions.

**This signed document is to be returned as part of the application process.*

Student (Print Name): _____ Date: _____

Student's Signature: _____ Date: _____

Witness Signature: _____ Date: _____



**Medical Laboratory Technician Prerequisite Grid
SDSU and San Diego Community Colleges**

**THIS GRID IS DESIGNED TO BE AN ADVISEMENT TOOL ONLY,
NOT A GUARANTEE OF COURSE EQUIVALENCY FOR PRIOR COURSEWORK.**

SOUTHWESTERN COLLEGE

<i>Southwestern</i>	<i>SDSU</i>	<i>Cuyamaca</i>	<i>Grossmont</i>	<i>Imperial Valley</i>	<i>Miracosta</i>	<i>Palomar</i>	<i>*SDCCD</i>
BIOL 260	BIOL 212	BIO 140	BIO 140 **	BIOL 200 & 202 or 204	BIO 210	ZOO 200	BIOL 230
BIOL 261	BIOL 261	BIO 141 & 141L	BIO 141 & 141L **	BIOL 200 & 202 or 206	BIO 220	ZOO 203	BIOL 235
BIOL 265	BIOL 211 and 211L	BIO 152	BIO 152	BIOL 220	BIO 230	MICR 200	BIOL 205
CHEM 100 or CHEM 170	CHEM 100	CHEM 115 or 120	CHEM 115 or 120	CHEM 100	CHEM 100	CHEM 100	CHEM 100 & 100L
CHEM 110	CHEM 102	CHEM 116	CHEM 116 or CHEM 102	CHEM 160	CHEM 102	CHEM 104 or 105	CHEM 130 & 130L
COMM 103 or 174 or 176	COMM 103 or NC	COMM 122 or 120 or 124	COMM 122 or 120 or 124	SPCH 100 or NC	COMM 101 or 207	SPCH 100 or 115 or 131	COMS 103 or COMS 135 or 180
ENGL 115 or 115H	ENGL/RWS 100	ENGL 120	ENGL 120	ENGL 110	ENGL 100	ENG 100	ENGL 101 or 105
MATH 60 or HIGHER (exception MATH 100/115)	GMS 91 or Higher	MATH 103 or 110 or HIGHER	MATH 103 or 110 or HIGHER	MATH 091 or HIGHER	MATH 64 or Higher	MATH 60 or HIGHER	MATH 96 or MATH 98 (City) or MATH 115 (City) or Higher
***RDG 158 or ENGL 115 or 115H	NC or ENGL/RWS 100	ENGL 110R or 120	ENGL 105 or 106 or 107 or 110R or 120	ENGL 111 or 101	READ 100 or ENGL 100	READ 120 or ENG 100	NC or ENGL 101 or 105

NC: No Course *SDCCD: San Diego Community College District includes City College, Mesa College, and Miramar College. ** Southwestern College will also accept Grossmont College's BIO 144 & 145 to satisfy the Anatomy and Physiology requirement. Both courses must be satisfactorily completed to meet the requirement. ***Southwestern College RDG 158 or ENGL 115 or 115H will satisfy the Reading Proficiency requirement.
All science courses used to substitute for MLT science pre-requisites must include a laboratory component.