

# MEDICAL LABORATORY TECHNICIAN (MLT)

## **MLT 110 Introduction to Medical Laboratory Technology**

2 Class Hours, 2 Lab Hours, 4 Quarter Credit Hours

An introduction to clinical laboratory practices and procedures normally performed in a clinical laboratory, including quality control, laboratory math, safety, laboratory equipment, phlebotomy, accreditation, certification, and professionalism.

## **MLT 120 Urinalysis and Body Fluids**

2 Class Hours, 4 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 110

Corequisites: MLT 121

An introduction to urinalysis and body fluid analysis, including the anatomy and physiology of the kidney, and physical, chemical and microscopic examination of urine, cerebrospinal fluid, and other body fluids. Correlation to abnormal findings and disease states will be discussed. Utilizes a student laboratory for experiences in basic urinalysis and body fluids analysis.

## **MLT 121 Immunology**

4 Class Hours, 4 Quarter Credit Hours

Prerequisites: MLT 110

Corequisites: MLT 120

An introduction to the theory and application of basic immunology, including the immune response, principles of antigen-antibody reactions, and the principles of serological procedures. Methods of testing for diagnosis of immune system disorders, viral and bacterial infections will be discussed.

## **MLT 130 Hematology I**

2 Class Hours, 4 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 120 and MLT 121

Corequisites: MLT 131, MLT 132

Introduction to the theory and practical application of routine and special hematology procedures including, maturation sequence of formed elements, normal and abnormal morphology and associated diseases are discussed. Utilizes a student laboratory for experiences in basic hematology practices and procedures.

## **MLT 131 Medical Microbiology I**

2 Class Hours, 4 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 120 and MLT 121

Corequisites: MLT 130, MLT 132

Fundamentals of microbiology with emphasis on pathogenic bacteria and infectious disease, including collection, setup identification, susceptibility testing, and reporting procedures. Laboratory experience will include approaches in classification and identification of pathogenic organisms.

## **MLT 132 Clinical Chemistry I**

2 Class Hours, 4 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 120 and MLT 121

Corequisites: MLT 130, MLT 131

An introduction to the principles and procedures of various tests performed in clinical chemistry. Presents the physiological basis for the test, the principle and procedures for the test, and the clinical significance of the test results, including quality control and normal values. Also includes basic chemical laboratory techniques, chemical laboratory safety, electrolytes and acid-base balance, mineral and bone metabolism, carbohydrates, renal function, hemoglobin production disorders. Students will be expected to correlate laboratory test results with normal physiology and biochemistry and with disease states. Utilizes a student laboratory for experiences in basic clinical chemistry procedures.

## **MLT 240 Hematology II**

2 Class Hours, 4 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 130

Corequisites: MLT 241, MLT 242

A study of hemostasis and coagulation in normal and disease processes. A continuation of theory and principles of formed elements and their function in normal and pathologic processes. Also introduced are additional basic practices and procedures in the hematology laboratory.

## **MLT 241 Medical Microbiology II**

2 Class Hours, 4 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 131

Corequisites: MLT 240, MLT 242

Fundamentals of microbiology with emphasis on parasitology, mycology, and virology. Proper recovery and handling of specimens, growth requirements, and identification of organisms will be covered. Laboratory experience will include approaches in classification and identification of pathogenic organisms utilizing morphologic, cultural, biochemical, enzymatic, serologic, and nucleic acid analysis. Mycology, parasitology, and virology will be introduced.

## **MLT 242 Clinical Chemistry II**

2 Class Hours, 4 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 132

Corequisites: MLT 240, MLT 241

A continuation of the principles and procedures of various tests performed in Clinical Chemistry I. Presents the physiological basis for the test, the principle and procedures for the test, and the clinical significance of the test results, including quality control and normal values. Also includes proteins, liver function, lipids, enzymes, metabolites, endocrine function, tumor markers, cardiac markers, therapeutic drug monitoring and toxicology. Students will be expected to correlate laboratory test results with normal physiology and biochemistry and with disease states. Utilizes a student laboratory for experiences in basic clinical chemistry procedures.

## **MLT 250 Immunochemistry**

2 Class Hours, 4 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 240 and MLT 241 and MLT 242

A study of blood antigens and antibodies. Performance of routine blood banking procedures, including blood group and Rh typing, antibody screens, antibody identification, compatibility testing, blood donations, and transfusion therapy. Recordkeeping and quality control techniques will also be discussed. Utilizes a student laboratory for experiences in basic immunochemistry procedures.

**MLT 252 Clinical Practicum I**

21 Lab Hours, 5 Quarter Credit Hours

Prerequisites: MLT 240 and MLT 241 and MLT 242

This course is designed to supplement and expand upon the foundational knowledge provided during the didactic portion of the MLT program.

The simulated practicum will be completed on campus to provide the training required to apply knowledge gained during the program into practice. Students will be required to work independently to perform both routine and challenging laboratory tests. The collection, processing, and distribution of lab specimens according to standard procedures will be studied. Safety standards, legal and ethical behaviors, and quality control will be emphasized. The course allows students to rotate through key areas of the clinical laboratory including phlebotomy. Concepts, methods, and procedures discussed/studied in lecture and lab will be reinforced in the clinical practicum.

**MLT 260 Medical Laboratory Technology Seminar**

2 Class Hours, 2 Quarter Credit Hours

Prerequisites: MLT 252 and MLT 250

Professional topics in clinical laboratory science, including but not limited to, weekly discussion of materials covered during clinical site visits.

Professional certifications and organizations are also discussed. Topics in lab accreditation, inspection, resume writing, professionalism, and management are covered as well.

**MLT 262 Clinical Practicum II**

12 Lab Hours, 4 Quarter Credit Hours

Prerequisites: MLT 250 and MLT 252

This course is designed to supplement and expand upon the foundational knowledge provided during the didactic portion of the MLT program. The practicum will be completed at a variety of affiliate laboratories (usually hospital-based) to provide the training required to apply knowledge gained during the program into practice. Students will be required to perform both routine and challenging laboratory tests. The collection, processing, and distribution of lab specimens according to standard procedures will be studied. Safety standards, legal and ethical behaviors, and quality control will be emphasized in a direct patient care setting.

The course allows students to rotate through key areas of the clinical laboratory. Concepts, methods, and procedures discussed/studied in lecture and lab will be reinforced in the clinical practicum.