Medical Laboratory Technology (MLT)

MLT 120 Introduction to Clinical Laboratory

3 Hours

Prerequisites: Admission to Medical Laboratory Technology Program

4 hours weekly (2-2)

Acquaints the student with the profession of medical laboratory technology. Includes an overview of the major disciplines in laboratory medicine, basic laboratory mathematics, collection and handling of specimens, handling and care of laboratory equipment, preparation of solutions and media, methods of sterilization, and the basic elements of quality control. The student is introduced to the disciplines of hematology, immunohematology, clinical chemistry, urinalysis, and microbiology.

MLT 121 Serology

1.5 Hours

Prerequisites: MLT 120

2 hours weekly (1-1)

An introduction to immunology with emphasis on applied serology. The immune response, properties and synthesis of antibodies, antigens, and antibody reactions, and the serological procedures most widely performed in the clinical laboratory are the major topics for discussion.

MLT 122 Clinical Microscopy

1.5 Hours

Prerequisites: MLT 120

2 hours weekly (1-1)

A study of the theory and microscopic examination of urine and other body fluids (i.e., synovial fluid, thoracentesis fluid, semen, and gastric fluid).

MLT 123 Phlebotomy

3 Hours

Prerequisites: Successful completion ("C" or higher) in MLT 120

4 hours weekly (2-2)

MLT Phlebotomy covers the phlebotomist's role in health care, confidentiality and ethics; Patient's Bill of Rights; Quality Assurance; basic anatomy and physiology of the circulatory system, safety, infection-control, isolation techniques; OSHA standards; handling accidental needle stick exposures; phlebotomy equipment; phlebotomy technique on routine venipunctures, dermal punctures, and drawing difficult patients; specimen collection and handling techniques; compliance; customer service; patient identification procedures; and competency in phlebotomy. In addition, the student will learn the theory of arterial punctures, but will observe only, in the clinical setting. The student will perform 100 venipunctures during the eight weeks of clinical rotation for recommended experience and competency as well as specimen collection and handling procedures.

MLT 124 Coagulation

3 Hours

Prerequisites: MLT 120

4 hours weekly (2-2)

This course provides a comprehensive study of the mechanisms and clinical aspects of hemostasis and coagulation. Students will explore the physiology of blood clotting, including the roles of platelets, plasma proteins, and the vascular system in hemostasis. Topics include the coagulation cascade, fibrinolysis,

and the regulation of clot formation and dissolution. The course will also cover common bleeding disorders, thrombotic conditions, and laboratory methods used to assess coagulation function.

MLT 223 Immunohematology

4 Hours

Prerequisites: MLT 121, 122

5 hours weekly (3-2)

A study of the blood groups of mankind and their significance in bloodbanking and transfusion services. Included are the inheritance and properties of blood group antigens and their corresponding antibodies, methods of detection and identification, hemolytic disease processes, and the collection and processing of blood and blood components to ensure safe transfusion. Blood group immunology, record keeping, and quality control are stressed.

MLT 225 Clinical Chemistry

4 Hours

Prerequisites: MLT 223

5 hours weekly (3-2)

A study of the diagnostic chemistry tests in the average clinical laboratory. Includes normal physiology, principles of the reactions and interpretation of test results. Includes basic instrumentation, laboratory mathematics, and quality control.

MLT 228 Hematology and Hemostasis

5 Hours

Prerequisites: MLT 120, MLT 121, MLT 122, MLT 123

6 hours weekly (4-2)

This course offers an introduction to the study of clinical hematology and hemostasis, which emphasizes the basic procedures performed in most clinical laboratories as well as their uses in the diagnosis and follow up of hematological and coagulation disorders. The role of the laboratory in the diagnosis of anemias, leukemias, myeloproliferative disorders, and other diseases affecting the hematopoietic system is stressed along with the hemostatic component, coagulation factors, coagulation cascade mechanism, heredity and acquired bleeding disorders, coagulation factor deficiencies, therapeutic regimes, and laboratory methods for analysis of clinical conditions.

MLT 229 Applied Clinical Microbiology

4 Hours

Prerequisites: MLT 223, MLT 228, MLT 251

5 hours weekly (3-2)

This course is a study of the normal and pathogenic microflora of man with an emphasis on the methods used for isolation, recognition and identification of microorganisms of medical significance. Included are the types of media used for culturing microorganisms, descriptive cellular and colonial morphology, stains and staining reactions, drug susceptibility testing and procedures used for species identification. Emphasis on host parasite relationships, medical bacteriology, virology, parasitology, and mycobacteria is also stressed.

MLT 230 Parasitology and Mycology

3 Hours

Prerequisites: MLT 223 & MLT 228

3 hours weekly (3-0)

This course offers an in-depth exploration of parasitology and mycology, focusing on the biology, epidemiology, and clinical significance

of parasitic and fungal organisms that impact human health. In the parasitology section, students will study the classification, life cycles, modes of transmission, and pathogenesis of major human parasites. The mycology section will cover medically significant fungi, emphasizing fungal taxonomy, morphology, and the mechanisms by which fungi cause disease in humans.

MLT 251 Clinical Rotation I

3 Hours

Prerequisites: MLT 223

15 clinical hours (0-15)

Supervised clinical experience. Students rotate in hematology/coagulation and immunohematology during the last 6 ½ weeks of the semester.

MLT 252 Clinical Rotation II

3 Hours

Prerequisites: MLT 251

15 clinical hours (0-15)

Supervised clinical experience. Students rotate in clinical chemistry/clinical microscopy, and clinical microbiology/serology.