

Medical Laboratory Technician (MLT)

(Clinical Laboratory Science Department)

MLT 101—Fundamentals of Medical Physiology for MLT Majors

3 lect., 2 lab, 4 cr. (Fall)

Overview of the 10 systems of the human body in health and disease with emphasis on the physiology of the human. Introduction of terminology relative to each system will be discussed. Laboratory exercises relate structure to function. Human materials and models are used. [R-1]

Corequisite: MLT 103, MLT 105

Note: MLT 101 (with laboratory) can be applied to the liberal arts science requirement for associate degrees or the Medical Laboratory Technology program

MLT 102—Urinalysis and Body Fluids

2 lect., 2 lab, 3 cr. (Spring)

This course provides a study of the urinary system, its structure and function and the processes that result in the formation of urine. The course will explore the collection and analysis of urinary samples with regard to physical, chemical and microscopic components. The clinical significance of urinary test results will be discussed as well as their correlation with disease states. The course will also explore body fluids and the analysis methods used in the laboratory. [R-1]

Prerequisite: MLT 101, or BIO 111 and BIO 112

MLT 103—Immunology

2 lect., 2 lab, 3 cr. (Fall)

The study of the immune system including its components and their functions. Lecture topics will cover antibody and antigen structure and function, humoral immunity, cell-mediated immunity, and the complement system. Lab topics include pathological conditions and the test methods used to help diagnose them. [R-1]

Corequisite: MLT 101, MLT 105

MLT 104—Hematology

3 lect., 3 lab, 4 cr. (Spring)

Lecture topics include blood cell formation and function, the coagulation system, and the corresponding laboratory tests. Both normal and pathological states including anemias, leukemias, hemoglobinopathies and coagulopathies will be covered. Laboratory exercises focus on manual, semi-automated and automated techniques with an emphasis on the CBC and manual differentials. [R-1]

Prerequisite: MLT 101, MLT 103, MLT 105

MLT 105—Introduction to Laboratory Science

2 lect., 2 lab, 2 cr. (Fall)

An overview of the clinical laboratory profession with emphasis on basic skills. Topics discussed include lab safety, venipuncture procedure, specimen collection and handling, basic instrumentation, solutions/dilutions, quality control/quality assurance, ethics, accrediting agencies, laboratory departments and laboratory operations. [R-1]

Corequisite: MLT 101, MLT 103

MLT 106—Microbiology for Health Professionals

2 lect., 2 lab, 3 cr. (Fall/Spring/Summer)

Overview of bacteria, yeasts, molds, protozoa and viruses in relation to the Allied Health Professions. Lectures deal with host-microorganism relationships. Laboratory includes use of the microscope, culture methods and destruction of micro-organisms. Sterile technique is stressed. [R-1]

Pre/corequisite: BIO 110 or BIO 111

MLT 109—Phlebotomy

6 lect., 4 lab, 7 cr. (Fall/Spring)

A 15-week, 210-hour certificate course where the student is trained in drawing and handling blood samples for laboratory testing in hospitals, doctors' offices, and large service laboratories. Training includes a minimum of 120 hours of clinical experience and a minimum of 100 successful unaided collections. Students learn a variety of collection techniques, have contact with various patient types, and learn in a variety of settings. Approved methods, safety, medical terminology, anatomy, laboratory procedures, and professional conduct are discussed in lecture. Students are eligible to sit for the ASCP National Certification Examination upon successful completion of the NAACLS-approved course of study. See Medical Laboratory Technician course sequence pages for NAACLS address and phone number.

MLT 110—Fundamentals of Medical Physiology

3 lect., 3 cr. (Spring)

Overview of the ten systems of the human body in health and disease with emphasis on the physiology of humans. Introduction of terminology relative to each system will be discussed. [R-1]

Note: This course does not include a laboratory component but fulfills the liberal arts science requirement for associate degrees

MLT 200—Clinical Applications and Review

2 lect., 2 cr. (Spring)

This course is designed to be a capstone course that allows the student to apply the knowledge gained in the program and review pertinent material for the licensure/certification examinations. The student will research and present various case studies related to all of the laboratory disciplines, statistics, instrumentation and ethics. The student will review mock certification exams which will be discussed in class. [R-1]

Prerequisite: MLT 101, MLT 102, MLT 103, MLT 104, MLT 105, MLT 203, MLT 207, MLT 209, MLT 251

Corequisite: MLT 208, MLT 212, MLT 252 or completion of all MLT courses

Note: This course is open to students in the MLT program only

MLT 203—Immunohematology

2 lect., 3 lab, 3 cr. (Fall)

Detailed study of the theory and practice of blood banking with respect to human blood group antigens and antibodies. Lecture topics to include safety in the lab, basic principles and applications of blood bank, the major blood group systems, essentials of pretransfusion testing, clinical considerations including hemolytic disease of the newborn, adverse reactions, blood component preparation and therapy, and donor selection and screening. Laboratory exercises focus on accurate blood group typing, antibody screening and identification, DAT, and crossmatching. [R-1]

Prerequisite: MLT 103, MLT 104

MLT 207—Clinical Chemistry 1

2 lect., 2 lab, 3 cr. (Fall)

Study of the composition and methods of assays of blood and body fluids. Lecture stresses the physiologic basis of human metabolites in health and disease. Laboratory emphasizes analytical methodologies, basic instrumentation and quality control. Carbohydrate metabolism, NPN, proteins and other analytes are discussed and studied in detail in lecture. [R-1]

Prerequisite: CHM 101 (formerly CHM 105), CHM 102 (formerly CHM 106) or CHM 103, CHM 104

MLT 208—Clinical Chemistry 2

2 lect., 2 lab, 3 cr. (Spring)

Continued study of the composition and methods of assay of blood and body fluids. Lecture topics include lipids, enzyme kinetics, liver function tests, renal function, cardiac assessment, therapeutic drugs and toxicology. Laboratory emphasizes analytic methodologies of selected analytes. [R-1]

Prerequisite: MLT 207

MLT 209—General Microbiology

3 lect., 3 lab, 4 cr. (Fall)

Topics of study include classification, nomenclature, taxonomic relationships and identification of microorganisms. The physiology of microbes, pathogenic organisms and organisms of economic importance are considered. Laboratory exercises stress sterile technique, staining methods, culture of microbes, biochemical tests used in identification of microorganisms, as well as a culminating project involving the identification of an unknown organism. [R-1] (G2A)

Prerequisite: BIO 101, BIO 111, or permission of the MLT department chair

Note: This is a required course for the MLT program; this course may be used in place of MLT 106 for nursing/pre-nursing students who intend to transfer to a Bachelor's program after graduation

MLT 212—Clinical Microbiology

2 lect., 3 lab, 3 cr. (Spring)

The identification and quantification of pathologic and non-pathologic organisms encountered in human specimens. Treatment and handling of specimens are discussed. Methods in mycology, parasitology and serology as applicable to the clinical laboratory are taught. [R-1]

Prerequisite: MLT 209

MLT 216—Histology

2 lect., 3 lab, 3 cr. (Spring)

The microscopic study of vertebrate cells, tissues and organs, stressing the relationship of structure to function. Laboratory work includes the preparation of stained slides for light microscopic study and study of prepared slides of cells, tissues and organs to enable the student to identify basic tissues. [R-1]

Prerequisite: One semester of a biological science

MLT 251—Clinical Training 1

lect., 6 lab, 2 cr. (Fall)

Under the supervision of clinical proctors, students practice medical laboratory techniques. [R-1]

Prerequisite: MLT 101, MLT 102, MLT 103, MLT 104

Corequisite: MLT 207

MLT 252—Clinical Training 2

lect., 15 lab, 5 cr. (Spring)

Continuation of clinical experience. Under the supervision of clinical proctors, students gain additional experience in developing technical skills. [R-1]

Prerequisite: MLT 203, MLT 209

Corequisite: MLT 208 and MLT 212, or completion of all MLT courses