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 immune system; its components, and their functions. Antigen-antibody reactions, cell-mediated immunity, the complement system, and pathological conditions are discussed. [R-1]
Corequisite: MLT 101, MLT 105

MLT 104—Hematology
3 lect., 3 lab, 4 cr. (Spring)
Topics include blood cell formation, function, pathological states both physiological and genetic, hemoglobinopathies, coagulation theory and factors. Laboratory exercises correlate basic tests with lecture topics. Test proficiency is developed utilizing manual and both automated and semi-automated techniques. [R-1]
Prerequisite: MLT 101, MLT 103, MLT 105

MLT 105—Introduction to Laboratory Science
1 lect., 2 lab, 2 cr. (Fall)
A survey of the clinical laboratory profession with emphasis on basic skills as it applies to the instrumentation used. Lecture topics include safety, venipuncture, specimen collection and handling, basic instruments, solutionmaking, quality assurance, ethics, and accrediting agencies. [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 basic concepts of inheritance and heredity with respect to human blood factors. Blood bank procedures such as typing, immune antibody screening and identification, titre level determination, medicolegal exclusions and transfusion procedures are performed. [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 assay of 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, electrolytes and proteins are studied in detail. [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 body fluids. Lipids, enzyme kinetics, liver function tests, renal function, cardiac assessment hormone levels and toxicology are discussed in lecture and performed in the laboratory. [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