

# MEDICAL LABORATORY TECHNOLOGY (MLT)

## MLT 101 (3 credit hours)

### Introduction to the Clinical Laboratory

Includes an orientation to the laboratory and management structure, professional organizations, professional ethics, communication, and record keeping. Covers medical terminology and abbreviations, quality assurance procedures, laboratory safety rules and procedures, specimen processing, laboratory automation, and basic immunology. Introduces the student to the various laboratory departments. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (45 contact hours).

**Pre-requisite:** Admission into the MLT program or permission of the MLT Program Director or MLT Clinical Coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## MLT 112 (2 credit hours)

### Urinalysis

Focuses on methodology and clinical significance of urine chemical analysis, interferences with chemical analysis procedures, screening methods used in diagnostic determinations, collection and handling of specimens, and the characteristics and clinical significance of formed elements of the urine. Includes the physiological function of the kidneys and diseases which affect the urinary system. If taken as a pre-requisite, a minimum grade of "C". Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Admission into the MLT program or permission of the MLT program director/coordinator.

**Pre- or co-requisite:** MLT 101 or PHB 170.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## MLT 115 (2 credit hours)

### Serology

Introduces basic immunological principles. Includes applications of serological testing for the diagnosis and monitoring of diseases and other antigenic responses. Lecture: 1.5 credit (22.5 contact hours). Laboratory: 0.5 credits (15 contact hours).

**Pre-requisite:** Admission into the MLT program or permission of MLT program director/coordinator.

**Components:** LAB: Laboratory, LEC: Lecture

## MLT 205 (3 credit hours)

### Clinical Microbiology I

Introduces the application of microbiological principles to clinical laboratory practice. Includes safety and use of standard precautions, staining, selection and use of media, specimen processing, cultivation and identification of bacteria, and antimicrobial susceptibility testing. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (45 contact hours).

**Pre-requisite:** [(MLT 101 and MLT 119) or BIO 225 with a grade of "C" or greater]; admission into the MLT program; permission by MLT program director/coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## MLT 206 (2 credit hours)

### Clinical Microbiology II

Continues with the application of microbiological principles to clinical laboratory practice. Includes mycology, parasitology, virology, and mycobacteriology. Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Admitted into the MLT program; permission of the MLT program director/coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## MLT 207 (2 credit hours)

### Introduction to Clinical Diagnostic Microbiology

Reviews the basic concepts of bacterial cell structure, physiology, nomenclature and classification. Emphasizes safety in the microbiology department of the laboratory. Introduces specimen processing as it relates to the microbiology department in the clinical laboratory. Covers the practical importance of identifying microorganisms through morphology on culture media, appearance on gram stain, and biochemical reactions. Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Admission into the MLT program or permission of the MLT Program Director/MLT Clinical Coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## MLT 208 (3 credit hours)

### Clinical Diagnostic Microbiology I

Discusses theoretical concepts, disease processes, identification schemas, diagnostic characteristics, biochemical reactions, susceptibility testing, and isolation techniques of gram positive and gram negative microorganisms associated with infections diagnosed in the clinical laboratory microbiology department. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (45 contact hours).

**Pre-requisite:** MLT 207 with a grade of "C" or better or permission of the MLT Program Director/MLT Clinical Coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

## MLT 209 (2 credit hours)

### Clinical Diagnostic Microbiology II

Exposes the student to a study of anaerobes, spore forming gram positive bacilli, virology, mycobacterium, mycoplasma, spirochetes, mycology and parasitology with focus on the clinical diseases and diagnostic procedures in the microbiology department of the clinical laboratory. Lecture: 1 credit (15 contact). Laboratory: 1 credit (30 contact hours).

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 215 (4 credit hours)****Hematology I**

Covers hematopoiesis and classic methodologies of standard hematology procedures. Includes the principles of various automated hematology analyzers, histograms and scattergrams. Provides students with the opportunity to perform basic hematology and coagulation procedures, correlate laboratory data to aid in diagnosis, and describe methodology of procedures and their clinical significance. Includes mechanisms of coagulation, routine coagulation testing, disease states associated with coagulation abnormalities, platelet evaluation, fibrinolysis and anticoagulant therapy. Lecture: 3 credits (45 contact hours). Laboratory: 1 credit (60 contact hours).

**Pre-requisite:** MLT 101 with a grade of "C" or greater or admission into the MLT program or permission by MLT program coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 216 (3 credit hours)****Hematology II**

Continues the study of hematology. Includes a study of anemias, leukemias, lymphomas, miscellaneous abnormal white blood cell disorders to assess hematologic changes and correlate laboratory data to diagnosis. Covers body fluids and other special hematologic procedures. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** MLT 215 with a grade of "C" or greater; permission by MLT program director/coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 217 (3 credit hours)****Fundamentals of Hematology**

Presents classic methodologies related to standard hematology procedures. Includes collection and processing of proper specimens, performance of quality control, and analysis of fundamental hematological parameters to aid in diagnosis. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Admission into the MLT program or permission of the MLT Program Director/MLT Clinical Coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 218 (4 credit hours)****Clinical Hematology**

Continues the study of hematology. Includes hemostasis, anemias, leukemias, lymphomas, miscellaneous abnormal white blood cell disorders, body fluid analysis and other special hematological procedures. Lecture: 3 credits (45 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** A grade of C or better in MLT 217 or permission of the MLT Program Director/MLT Clinical Coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 225 (2 credit hours)****Immunohematology I**

Includes the principles of immunology in relation to blood banking, blood group systems, donor processing and screening, antibody screening, and blood components. Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (45 contact hours).

**Pre-requisite:** MLT 101 with a grade of "C" or greater; admission into the MLT program; permission by MLT program director/coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 226 (2 credit hours)****Immunohematology II**

Includes antibody screening and panel interpretation, compatibility testing, viral markers and related disease states, hemolytic disease, and HLA markers. Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** MLT 225 or Permission by MLT Program Director/Coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 227 (4 credit hours)****Immunohematology**

Covers principles and practices in blood banking, including topics such as blood group systems, blood components, antibody identification and compatibility testing. Lecture: 2 credits (30 contact hours). Laboratory: 2 credits (75 contact hours).

**Pre- or co-requisite:** MLT 115 with a grade of "C" or greater and admission into the MLT program or permission of the MLT Program Director/MLT Clinical Coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 233 (3 credit hours)****Clinical Chemistry I**

Provides a review of basic inorganic chemistry and organic chemistry principles and types of instrumentation commonly used in a medical laboratory. Covers carbohydrates, non-protein nitrogen compounds, proteins, lipids and enzymes as related to clinical diagnosis. Introduces quality control procedures, including statistical calculations for graph preparation and interpretation of gathered data. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** (MLT 101 with a grade of "C" or greater and admission into the MLT program) or MLT Program Coordinator/Director.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 234 (2 credit hours)****Clinical Chemistry II**

Presents the physiology and testing of liver function, hormones, electrolytes and acid-base metabolism. Includes toxicology and therapeutic drug monitoring, tumor markers, and special chemistries. If taken as a Pre-requisite, a minimum grade of C. Lecture: 1 credit (15 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** MLT 101 with a grade of "C" or greater; permission by MLT program director/coordinator.

**Pre- or co-requisite:** MLT 233.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 247 (3 credit hours)****Introduction to Clinical Chemistry**

Introduces the student to a variety of automated instrumentation and methodologies of selected chemistry test procedures. Exposes student to the basic principles as well as the techniques used in clinical chemistry to assess carbohydrates, non-protein nitrogen compounds, amino acids and proteins, lipids and lipoproteins, and enzymes as related to clinical diagnosis. Acquaints the student with basic laboratory mathematics and quality assurance procedures utilized in the clinical laboratory department. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** Admission into MLT program or permission of the MLT Clinical Coordinator/MLT Program Director.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 248 (3 credit hours)****Advanced Clinical Chemistry**

Continues the study of clinical chemistry. Presents a study of lipids and lipoproteins, acid/base balance, electrolytes, endocrine system, liver, gastrointestinal and pancreatic function, therapeutic drug monitoring, and toxicology. Lecture: 2 credits (30 contact hours). Laboratory: 1 credit (30 contact hours).

**Pre-requisite:** MLT 247 with a grade of "C" or greater or permission of the MLT Program Director/MLT Clinical Coordinator.

**Attributes:** Technical

**Components:** LAB: Laboratory, LEC: Lecture

**MLT 278 (4-5 credit hours)****Practicum I**

Develops performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Utilizes and depends upon external institutions to ensure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in all assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the MLT Program Director. This practicum is designed to develop skills with strong supervisory instruction in all assigned departments. Practicum: 4-5 credits (240-300 contact hours).

**Pre-requisite:** MLT 101 with a grade of "C" or better or Admission into MLT program; or permission by MLT program director/coordinator.

**Attributes:** Course Also Offered in Modules, Technical

**Components:** PCM: Practicum

**MLT 279 (4-5 credit hours)****Practicum II**

Develops performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Utilizes and depends upon external institutions to ensure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in all assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the MLT Program Director. This practicum is designed to develop skills with strong supervisory instruction in all assigned departments. Practicum: 4-5 credits (240-300 contact hours).

**Pre-requisite:** MLT 101 with a grade of "C" or better or Admission into MLT program or permission by MLT Program Director/Coordinator.

**Attributes:** Course Also Offered in Modules, Technical

**Components:** PCM: Practicum

**MLT 2781 (2-2.5 credit hours)****Practicum I Part 1**

Develops performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Utilizes and depends upon external institutions to insure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in all assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the MLT program director. This practicum is designed to develop skills with strong supervisory instruction in all assigned departments. Practicum: 2 - 2.5 credits (120-150 contact hours).

**Pre-requisite:** MLT 101 with a grade of "C" or greater or admission into the program.

**Components:** PCM: Practicum

**MLT 2782 (2-2.5 credit hours)****Practicum I Part 2**

Develops performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Utilizes and depends upon external institutions to insure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in all assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the MLT program director. This practicum is designed to develop skills with strong supervisory instruction in all assigned departments. Practicum: 2 - 2.5 credits (120-150 contact hours).

**Pre-requisite:** MLT 2781 with a grade of "C" or greater.

**Components:** PCM: Practicum

**MLT 2791 (2-2.5 credit hours)****Practicum II Part 1**

Develops career entry level performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Provides an opportunity for more responsibility and independence with previously learned procedures. Enhances the student's transition to the world of work by providing work experiences in a clinical setting. Utilizes and depends upon external institutions to insure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the CLT program director. Practicum: 2-2.5 credits (120-150 contact hours).

**Pre-requisite:** MLT 101 with a grade of "C" or greater; or admission to the MLT program.

**Components:** PCM: Practicum

**MLT 2792 (2-2.5 credit hours)****Practicum II Part 2**

Develops career entry level performance skills and professional attitude in the student in assigned areas of the clinical laboratory. Provides an opportunity for more responsibility and independence with previously learned procedures. Enhances the student's transition to the world of work by providing work experiences in a clinical setting. Utilizes and depends upon external institutions to insure adequate clinical education and training. Each clinical laboratory affiliate has designated personnel to assist the student in assigned areas of the clinical laboratory. Provides a prescribed schedule of rotations in various departments of the laboratory for each individual student by the MLT program director. Practicum: 2-2.5 credits (120-150 contact hours).

**Pre-requisite:** MLT 2791 with a grade of "C" or greater.

**Components:** PCM: Practicum