

# MEDICAL LAB TECHNICIAN (MLTP)

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## **MLTP 101 Phlebotomy3 Credits**

Orientation to the clinical lab areas and workflow. Emphasis on venipuncture and dermal collections. Skills necessary for limiting pre-analytic errors with sample collections and processing. Knowledge of POC testing, patient collection instructions, send out testing and informatics. Review of regulatory, ethical and legal issues, healthcare delivery system, certification and licensure, organ systems, basic medical terminology, infection prevention, and professionalism.

**Corequisites:** MLTP 102.

**Fees:** Yes.

## **MLTP 102 Applied Phlebotomy2 Credits**

Clinical laboratory experience at an affiliated site. Application of knowledge and skills to venipuncture and dermal collections, sample processing, POC testing, patient collection instructions, send-out testing, informatics, OSHA practices and phlebotomist professionalism are included.

**Corequisites:** MLTP 101.

## **MLTP 132 Clinical Hematology and Coagulation3 Credits**

Introduction to the theory and practical application of hematology and hemostasis as it relates to the medical laboratory. Bone marrow, blood cell formation, hemoglobin structure and synthesis, cell function and morphology, and coagulation are explored. Correlation of test results with normal results, blood cell disorders and clotting abnormalities emphasized. Laboratory techniques, instrumentation, and quality assurance in the hematology/hemostasis lab.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, and MLTP 102.

**Corequisites:** MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275.

## **MLTP 132L Clinical Hematology and Coagulation Lab1 Credit**

Lab component required for MLTP 132.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/BIOL 121L or CHEM 131/CHEM 131L, MLTP 101, and MLTP 102.

**Corequisites:** MLTP 132, MLTP 141/MLTP 141L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275.

**Fees:** Yes.

## **MLTP 138 Clinical Immunology2 Credits**

Fundamentals and procedures of the immune defenses as it relates to medical laboratory testing; innate and adaptive immune responses, deficiencies, autoimmunity, hypersensitivity and tissue transplantation. Exploration of serologic techniques and instrumentation in the detection and diagnoses of viral illness, immune related diseases and its applications in immunohematology. Introduction to theories and principles of molecular testing methods.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, and MLTP 102.

**Corequisites:** MLTP 138L, MLTP 142/MLTP 142L, and MLTP 231/MLTP 231L.

## **MLTP 138L Clinical Immunology Lab1 Credit**

Lab component required for MLTP 138.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, and MLTP 102.

**Corequisites:** MLTP 138, MLTP 142/MLTP 142L, and MLTP 231/MLTP 231L.

**Fees:** Yes.

## **MLTP 141 Clinical Immunohematology2 Credits**

Theoretical principles and procedures in immunohematology and application in the medical laboratory. Blood banking procedures and potential problems in blood bank testing relative to antibody identification, compatibility testing, transfusion reactions and maternal/neonatal screening for hemolytic disease of the newborn.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, MLTP 102, MLTP 138/MLTP 138L, MLTP 142/MLTP 142L, and MLTP 231/MLTP 231L.

**Corequisites:** MLTP 141L, MLTP 132/MLTP 132L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275.

## **MLTP 141L Clinical Immunohematology Lab1 Credit**

Lab component required for MLTP 141.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, MLTP 102, MLTP 138/MLTP 138L, MLTP 142/MLTP 142L, and MLTP 231/MLTP 231L.

**Corequisites:** MLTP 141, MLTP 132/MLTP 132L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275.

**Fees:** Yes.

## **MLTP 142 Clinical Microscopy2 Credits**

Introduction to microscopy in the medical laboratory. Emphasis on kidney function and urine formation: examination of the physical, chemical and microscopic components of urine. Body fluid analysis of feces, seminal, vaginal, amniotic, cerebrospinal, serous, and synovial fluids. Critical analysis and problem solving with regards to pre-analytic, analytic and post-analytic variables in sample testing.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, and MLTP 102.

**Corequisites:** MLTP 138/MLTP 138L, MLTP 142L, and MLTP 231/MLTP 231L.

## **MLTP 142L Clinical Microscopy Lab1 Credit**

Lab component required for MLTP 142.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, and MLTP 102.

**Corequisites:** MLTP 138/MLTP 138L, MLTP 142, and MLTP 231/MLTP 231L.

**Fees:** Yes.

## **MLTP 180 Applied Immunohematology3 Credits**

Clinical laboratory experience in the principles and procedures of immunohematology at an affiliated site. It is an online supported, off-campus clinical laboratory experience taught by clinical faculty. Emphasis is on the application of knowledge and technical skills to clinical testing, methodology, instrumentation, quality control, correlation of laboratory data with pathophysiology, OSHA practices and medical laboratory technician professionalism are included.

**Prerequisites:** MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275,

**Corequisites:** MLTP 182, MLTP 250, MLTP 252, and MLTP 253.

## **MLTP 182 Applied Hematology and Body Fluids4 Credits**

Clinical laboratory experience in the principles and procedures of hematology, hemostasis, urinalysis and body fluids at an affiliated site. It is an on-line supported, off-campus clinical laboratory experience taught by clinical faculty. Emphasis is on the application of knowledge and technical skills to clinical testing, methodology, instrumentation, quality control, correlation of laboratory data with pathophysiology, OSHA practices and medical laboratory technician professionalism are included.

**Prerequisites:** MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275.

**Corequisites:** MLTP 180, MLTP 250, MLTP 252, and MLTP 253.

**MLTP 195 Independent Study1-3 Credits**

Course may be taken multiple times up to maximum of 6 credit hours.

**MLTP 231 Clinical Microbiology I3 Credits**

Study of normal flora and pathogenic microorganisms. Methods for recovery, identification of pathogens, culture techniques, procedures, antibiotic testing, automation and interpretation of clinical data. Emphasis on clinical specimens, testing algorithms and data correlation including diagnostics, public health, safety and quality control.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, and MLTP 102.

**Corequisites:** MLTP 138/MLTP 138L, MLTP 142/MLTP 142L, and MLTP 231L.

**MLTP 231L Clinical Microbiology I Lab1 Credit**

Lab component required for MLTP 231.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, and MLTP 102.

**Corequisites:** MLTP 138/MLTP 138L, MLTP 142/MLTP 142L, and MLTP 231.

**Fees:** Yes.

**MLTP 232 Clinical Microbiology II3 Credits**

Introduction to basic identification and classification of medically significant mycobacteria and other bacteria with unusual growth requirements, fungi, parasites and viruses. Sample collection, processing, isolation methods, and immunologic diagnosis and treatment. Epidemiology and pathogenesis of associated diseases are explored.

**Prerequisites:** MLTP 142/MLTP 142L, and MLTP 231/MLTP 231L.

**Corequisites:** MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 242/MLTP 242L, and MLTP 275.

**MLTP 242 Clinical Chemistry3 Credits**

Application of human pathophysiology and how it relates to laboratory testing. Cardiovascular disease, kidney function, acid-base metabolism, liver, bone, carbohydrate disorders, endocrine, malignancy, and exogenous substances. Exploration of measurement methodologies, instrumentation, reagents and reactions, standards and control usage in quality assurance. Critical analysis and problem solving with regards to pre-analytic, analytic and post-analytic variables in sample testing.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, MLTP 102, MLTP 138/MLTP 138L, MLTP 142/MLTP 142L, MLTP 231/MLTP 231L.

**Corequisites:** MLTP 242L, MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, and MLTP 275.

**MLTP 242L Clinical Chemistry Lab1 Credit**

Lab component required for MLTP 242.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, MLTP 102, MLTP 138/MLTP 138L, MLTP 142/MLTP 142L, and MLTP 231/MLTP 231L.

**Corequisites:** MLTP 242, MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, and MLTP 275.

**Fees:** Yes.

**MLTP 250 Applied Chemistry and Serology2 Credits**

Clinical laboratory experience in the principles and procedures of chemistry and serology at an affiliated site. It is an on-line supported, off-campus clinical laboratory experience taught by clinical faculty. Emphasis is on the application of knowledge and technical skills to clinical testing, methodology, instrumentation, quality control, correlation of laboratory data with pathophysiology, OSHA practices and medical laboratory technician professionalism are included.

**Prerequisites:** MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275.

**Corequisites:** MLTP 180, MLTP 182, MLTP 252, MLTP 253.

**MLTP 252 Applied Microbiology4 Credits**

Clinical laboratory experience in the principles and procedures of clinical microbiology at an affiliated site. It is an on-line supported, off-campus clinical laboratory experience taught by clinical faculty. Emphasis is on the application of knowledge and technical skills to clinical testing, methodology, instrumentation, quality control, correlation of laboratory data with pathophysiology, OSHA practices and medical laboratory technician professionalism are included.

**Prerequisites:** MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275.

**Corequisites:** MLTP 180, MLTP 182, MLTP 250, and MLTP 253.

**MLTP 253 Certification Exam Review1 Credit**

Review of key principles and content in preparation for national certification examination.

**Prerequisites:** MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, MLTP 242/MLTP 242L, and MLTP 275.

**Corequisites:** MLTP 180, MLTP 182, MLTP 250, MLTP 252.

**MLTP 275 Capstone Seminar1 Credit**

Preparation for clinical internships. Conflict resolution, communication skills, professional behavior in the workplace, resume writing and interview skills.

**Prerequisites:** BIOL 209/BIOL 209L, BIOL 210/BIOL 210L, CHEM 121/CHEM 121L or CHEM 131/CHEM 131L, MLTP 101, MLTP 102, MLTP 138/MLTP 138L, MLTP 142/MLTP 142L, and MLTP 231/MLTP 231L.

**Corequisites:** MLTP 132/MLTP 132L, MLTP 141/MLTP 141L, MLTP 232, and MLTP 242/MLTP 242L.