# MEDICAL LAB. SCIENCE (MLS)

**MLS 3038 - Essentials of Clinical Lab Sci (3 Credits )**
Introduces students to the principles and practices of Clinical Laboratory Science. Topics include safety, phlebotomy, automation, laboratory mathematics, laboratory information systems, quality assurance, management, education, ethics, professional roles, accreditation and regulation.

**MLS 3220 - Biological Fluid Analysis (2 Credits )**
Lecture course introduces students to the theory and practices underlying the laboratory analysis of various biological fluids. Students study microscopic and physiochemical testing and correlate laboratory and clinical data to health and disease.
**Prerequisite(s):** (BSC 1010C or (BSC 1010 and BSC 1010L)) and (CHM 1046C or (CHM 1046 and CHM 1046L))

**MLS 4191 - Molecular Diagnostics (3 Credits )**
Focus on diagnosis through cytogenetic and nucleic acid molecular technology through study of basic and clinical techniques of DNA - based diagnostic methods.
**Prerequisite(s):** PCB 3063C or PCB 2336 or HSC 3161

**MLS 4308 - Hematology/Hemostasis (3 Credits )**
Study of human blood ontogeny, kinetics, and pathophysiology. Lecture study of theory and application of analytical techniques used to diagnose and monitor hematological disease and disorders of hemostasis.
**Prerequisite(s):** BSC 1010C or (BSC 1010 and BSC 1010L)

**MLS 4404 - Diagnostic Microbiology (3 Credits )**
Advanced comprehensive study of microorganisms that influence human health and disease. Emphasis on identification/diagnosis, microbial attributes, mechanisms that facilitate infectious disease, and treatment.
**Prerequisite(s):** MCB 2010C or MCB 3020C

**MLS 4462 - Diagnostic VMP (3 Credits )**
Study of viruses, fungi and parasites that influence human health and disease. Emphasis on identification/diagnosis, microbial attributes, mechanisms that facilitate infectious disease, and treatment.
**Prerequisite(s):** MCB 2010C or MCB 3020C

**MLS 4505 - Clinical Immunology (2 Credits )**
Course integrates basic and clinical immunology featuring clinical presentation, immunopathological features, diagnosis and treatment of immunologically related diseases. Lectures include discussion of diagnostic techniques and procedures utilized in a clinical immunology laboratory.
**Prerequisite(s):** BSC 1010C or (BSC 1010 and BSC 1010L)

**MLS 4550 - Immunohematology & Transfusion (3 Credits )**
Lecture course integrates theoretical concepts and applications related to blood donation process, transfusion therapy and blood group system biochemistry, genetics and serology.
**Prerequisite(s):** (HSC 3161 or PCB 3063C or PCB 2336) and PCB 4233C

**MLS 4627 - Clinical Biochemistry (3 Credits )**
Relationship and application of biochemistry to the diagnosis, prognosis, and treatment of human disease. Theoretical principles and study of techniques for proteins, enzymes, carbohydrates, lipids, electrolytes, nitrogen metabolites, inborn errors of metabolism, TDM and toxicology.
**Prerequisite(s):** BCH 3023C

**MLS 4820C - Clinical Biochemistry Practicu (3 Credits )**
Advanced practical experience and didactic information in a clinical biochemistry laboratory emphasize chemistry instrumentation, immunochemical analysis, electrophoresis, blood gases, TDM, and toxicology. Departmental permission, acceptance into the Department of EHMCS, and senior standing.
**Prerequisite(s):** MLS 4627

**MLS 4821C - Clinical Microbiology Practicu (3 Credits )**
Advanced practical experience and didactic information in a clinical microbiology laboratory utilizing diagnostic techniques in the identification of pathogenic bacteria, viruses, parasites, and fungi. Department permission, acceptance into the Department of Clinical Laboratory Science and senior standing.
**Prerequisite(s):** MLS 4404

**MLS 4822C - Clinical Hematology Practicum (3 Credits )**
Advanced practical experience in a clinical hematology/ hemostasis laboratory includes performance of diagnostic procedures and application of knowledge with emphasis on clinical correlation. Departmental permission, acceptance into the CLS program, and senior standing required.
**Prerequisite(s):** MLS 4308

**MLS 4823C - Clinical Immunohematology Prac (3 Credits )**
Advanced practical experience in a clinical immunohematology laboratory and perfusion service including compatibility testing, blood transfusion procedures and antibody detection and identification. Clinical experience includes operation and management of a transfusion service and donor center. Departmental permission, acceptance into the Department of Clinical Laboratory Science and senior standing.
**Prerequisite(s):** MLS 4550

**MLS 4826C - Clinical Immunology Practicum (2 Credits )**
Advanced practical experience in a clinical immunology laboratory including diagnostic techniques with emphasis on clinical correlation.
**Prerequisite(s):** MLS 4505

**MLS 4932 - Special Topics in CLS (1-3 Credits )**
Topics/focus of Clinical Laboratory Science under faculty direction is investigated. A selected topic, focus or problem in the CLS discipline will be studied. Course may be repeated in different topic area. Permission of the instructor is required.

**MLS 4940C - Molecular Biology Practicum (6-9 Credits )**
Practical experience provides application of Molecular Biology techniques in a community molecular diagnostics laboratory.
**Prerequisite(s):** MLS 4191