

MLS Course Descriptions:

MLS 406 Basic Lab Concepts: 1 credit

This course introduces basic clinical laboratory practices and techniques, principles of laboratory safety and infection control, professional ethics, specimen collection, handling, and processing, laboratory math concepts, and phlebotomy.

MLS 408 Clinical Immunology & Serology: 1 credit

This course includes the theory, practical application, and evaluation of immunological components, principles, and methodologies used in the assessment of immunologically related disorders, including hypersensitivity reactions, immunochemistry profiles, autoimmune, and immunodeficient disorders. This course also addresses the theory, practical application, technical performance, and evaluation of serological procedures, in addition to emphasizing the correlation of clinical laboratory data with patient diagnosis and treatment. The theory and application of molecular diagnostic tools are also introduced.

MLS 410 Clinical Chemistry I: 4 credits

This is the first semester of a two semester series on clinical chemistry. This course will provide students with an introduction to the clinical chemistry laboratory, including instrumentation and theory of testing procedures. Basic physiology of renal, liver, cardiac, gastrointestinal, pancreatic organ systems and clinically significant lipid, protein, hormones, carbohydrate, acid-base disturbances, electrolyte imbalances and analytes are emphasized. Correlation of clinical laboratory data with the diagnosis and treatment of disorders is introduced. This course will include instrumentation, methodologies, and quality control. A laboratory component is included in this course.

MLS 411 Clinical Chemistry II: 3 credits

This is the second semester of a two semester series on clinical chemistry. This course expands on the theory, technical performance and evaluation of chemistry laboratory procedures introduced in MLS 410 Clinical Chemistry I. Practical application and correlation of clinical laboratory data with disease states and treatment is emphasized, with a thorough examination of methodologies and problem-solving concepts. Advanced analytical skills, improved laboratory testing efficiency, workload management, and the resolution of unexpected laboratory results are covered in this course. Quality management which includes quality control, quality assurance, and instrument maintenance will also be included. A laboratory component is included in this course.

MLS 412 Clinical Hematology I: 4 credits

This course introduces the theory, practical application, technical performance, and evaluation of hematological and hemostasis procedures. There is an emphasis on the correlation of clinical laboratory data with the diagnosis and treatment of erythrocyte, leukocyte, and bleeding/clotting disorders. This course introduces pathologic states which are reviewed and thoroughly investigated using basic case presentations. The theory and performance of various hematologic and coagulation techniques is emphasized, along with comparison of techniques, and quality assurance. The purpose of this course is to provide students with a basic understanding of clinical hematology.

MLS 413 Clinical Hematology II: 3 credits

This is the second semester of a two semester series on clinical hematology and hemostasis; the course builds on the material introduced in MLS 412 Clinical Hematology I. Theoretical aspects of specialized hematology and coagulation techniques are reviewed, with a thorough examination of testing methodologies and problem-solving concepts. Hematology and coagulation disease states are thoroughly studied and correlated to the clinical laboratory data. Emphasis is placed on advanced analytical skills, improved laboratory testing efficiency, workload management, and the resolution of unexpected laboratory results. Quality management which includes quality control, quality assurance, laboratory techniques, and instrument maintenance will also be included. A laboratory component is included in this course.

MLS 414 Clinical Immunohematology I: 3 credits

This is the first semester of a two semester series on immunohematology. This course introduces the study of blood group antigens and antibodies as applied to the transfusion of blood and blood components. The course involves the study of the principles, procedures, and clinical significance of transfusion medicine. Included will be a brief overview of genetics, immunology, and regulations governing blood banks. Recognition of unexpected laboratory results will be emphasized. Quality testing which includes quality control, basic transfusion medicine laboratory techniques and procedures, and safety will also be included.

MLS 415 Clinical Immunohematology II: 3 credits

This course builds on the theory, practical application, technical performance and evaluation of immunohematology procedures required for the collection, processing, storage and transfusion of blood and blood components and management of immunohematologic conditions introduced in Clinical Immunohematology I.

MLS 416 Clinical Microbiology I: 4 credits

This is the first semester of a two semester series on clinical microbiology. This course introduces the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans. This course uses culture, biochemical, molecular and microscopic methods, as well as, the performance and interpretation of bacterial antibiotic susceptibility procedures. The course includes the study of bacteria and viruses of clinical significance, including detection and identification. Course also includes instrumentation and quality control relating to clinical microbiology.

MLS 417 Clinical Microbiology II: 4 credits

This is the second semester of a two semester series on clinical microbiology. This course builds on the theory, practical application, technical performance and evaluation of the procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans introduced in Clinical Microbiology I. This course includes bacteriology, mycology, parasitology, virology and serology, and emphasizes the correlation of clinical laboratory data with the patient's diagnosis and treatment.

MLS 418 Clinical Microscopy I: 1 credit

This course introduces the theory, practical application, technical performance, and evaluation of procedures used in the analysis of urine and other body fluids, including cerebrospinal, serous, synovial, seminal, and amniotic fluid. Course will include instrumentation and quality control. The purpose of this course is to provide students with a basic understanding of clinical urinalysis and body fluids.

MLS 419 Clinical Microscopy II: 1 credit

This course allows students to build on knowledge introduced in Clinical Microscopy I. The course advances the theory, practical application, technical performance, and evaluation of procedures used in the analysis of urine and other body fluids, including cerebrospinal, synovial, serous, seminal, and amniotic fluid. Correlation of laboratory data and microscopic findings with the diagnosis of renal and metabolic diseases and body fluid disorders are emphasized. The purpose of this course is to provide students with a comprehensive understanding of clinical urinalysis and body fluids.

MLS 420 Clinical Laboratory Management I: 1 credit

This course introduces the study of the basic concepts and principles of the management process with particular emphasis on laboratory operations. Laboratory safety, quality control, professionalism, scope of practice, research applications, and educational methodologies are topics included in this course.

MLS 421 Clinical Laboratory Management II: 1 credit

This course introduces the study of the basic concepts and principles of the management process with particular emphasis on laboratory operations and management. Laboratory finance, quality control, professionalism, regulatory agencies & government regulations and standards, oral presentation, personnel tools, statistics and validation & comparison studies, and educational methodologies are topics included in this course.

MLS 423 Medical Laboratory Science Clinical Correlation: 2 credits

This is a comprehensive course that uses lecture and case studies as an in-depth review of the theory and laboratory findings in all areas of the clinical laboratory including: immunology & serology, chemistry, hematology, immunohematology, microbiology, and microscopy. Practical application, evaluation, and correlation of clinical laboratory data, disease states, and diagnoses are emphasized.