

MLS 415 Clinical Chemistry I

6 Credits

Fundamentals of chemical analysis of body fluids. Laboratory practice in chemical formats, data evaluation, laboratory utilization, and quality control theory. Laboratory exercises linked to lectures: amino acids, proteins, carbohydrates, lipids, blood gases, enzymes, trace elements, electrochemistry, osmometry, electrophoresis, and spectroscopy.

MLS 416 Clinical Chemistry II

6 Credits

Fundamentals of chemical analysis of body fluids. Laboratory practice in chemical formats, data evaluation, laboratory utilization, and quality control theory. Laboratory exercises linked to lectures: renal and liver function, porphyrins, hormones, pregnancy, fetal development, bone metabolism, nutrition, and geriatrics.

MLS 417 Clinical Chemistry III

2 Credits

The theory, practical application and technical performance of chemical analysis. Emphasis on theory of therapeutic drug monitoring, toxicology, proteomics, individualized screening, and method validation.

MLS 420 Clinical Immunology and Infectious Serology

5 Credits

Lecture/laboratory coverage of human immunity, including innate and adaptive immunity, immune system organs, tissues, and activation. Immunological methods used in the clinical lab to assess human immune response in health and in various disease states are studied.

MLS 422 Molecular Diagnostic Methods

4 Credits

Coverage of molecular techniques used in the clinical laboratory to diagnose disease. Topics covered include principles of molecular biology, nucleic acid isolation, purification, amplification, quantitation, and discrimination. Specimen collection/handling, ethical issues and molecular lab operations are also covered.

MLS 424 Hemostasis

3 Credits

Lecture/lab coverage of the mechanisms of hemostasis and basic pathophysiology of hemostatic disorders. Students perform laboratory procedures pertaining to hemostasis, interpret results and correlate with other laboratory data to identify disease states.

MLS 432 Foundations of Clinical Laboratory Science I

4 Credits

The first of three courses covering essential professional practice issues related to the pre-analytical, analytical, and post-analytical components of laboratory services. Lecture and lab emphasis on application of theories and concepts underlying professional practice in the contemporary clinical laboratory.

MLS 442 Hematology I

6 Credits

Lecture and laboratory coverage of normal development and function of blood cells. Students will learn to evaluate normal and abnormal blood cell morphology through microscopic examination of blood smears. Students perform laboratory procedures pertaining to hematology.

MLS 443 Immunohematology I

4 Credits

Lecture/lab coverage of immunohematology with practical application in the contemporary blood bank laboratory. Topics include blood groups biochemistry, genetics, and immunology, test methods and transfusion practices including donor selection, component preparation, quality management and compliance issues.

MLS 444 Clinical Microbiology I

4 Credits

Lecture/lab coverage of human bacterial pathogens seen in the clinical laboratory including gram positive and gram negative cocci, and gram positive and gram negative bacilli. Principles and methods of clinical microbiology laboratory diagnosis of bacterial diseases are studied.

MLS 445 Clinical Microbiology II

4 Credits

Lecture/lab coverage of diseases caused by, and clinical laboratory identification of, human microbial organisms including anaerobes, spirochetes, mycobacteria, chlamydia, and rickettsia. Interpretation of clinical specimens, identification of pathogens, and the recognition of normal flora is also studied.

MLS 449 Principles of Urinalysis

3 Credits

Lecture and laboratory coverage of renal function, urine formation, and methods used to analyze urine in the medical laboratory. Students perform physical, chemical, and microscopic analyses on clinical samples and correlate results with states of health and disease in man.

MLS 452 Hematology II

5 Credits

Comprehensive study of the pathophysiology of hematological disorders. Students perform microscopic examination of blood films, interpret results and correlate with other laboratory data to identify disease states.

MLS 453 Immunohematology II

3 Credits

Continued study of immunohematology emphasizing clinical decision-making and problem-solving related to blood banking and transfusion therapy practices.

MLS 462 Foundations of Clinical Laboratory Science II

3 Credits

The second of three courses covering essential professional practice issues related to the pre-analytical, analytical, and post-analytical components of laboratory services. Lecture and lab emphasis on application of theories and concepts underlying professional practice in the contemporary clinical laboratory.

MLS 463 Foundations of Clinical Laboratory Science III

1 Credit

Third of three courses covering essential professional practice issues related to the pre-analytical, analytical, and post-analytical components of laboratory services. Emphasis on practical experience through the application of theories and concepts of professional development, administration and supervision at an approved off-campus clinical site.

MLS 470 Chemistry and Immunology Externship

4 Credits

Practical experience at an approved off-campus clinical site emphasizing application of knowledge and skills to perform a wide variety of testing in a contemporary clinical chemistry/immunology laboratory and further develop discipline-specific competency.

MLS 471 Hematology Externship

4 Credits

Practical experience at an approved off-campus clinical site emphasizing application of knowledge and skills to perform a wide variety of testing in a contemporary clinical hematology laboratory and further develop discipline-specific competency.

MLS Program Courses

2021 - 2022

MLS 472 Microbiology Externship

4 Credits

Practical experience at an approved off-campus clinical site emphasizing application of knowledge and skills to perform a wide variety of testing in a contemporary clinical Microbiology laboratory and further develop discipline-specific competency.

MLS 473 Immunohematology Externship

3 Credits

Practical experience at an approved off-campus clinical site emphasizing application of knowledge and skills to perform a wide variety of testing in a contemporary blood bank laboratory and further develop discipline-specific competency.

MLS 474 Medical Mycology and Parasitology

3 Credits

Lecture and laboratory coverage of normal and pathogenic parasitic organisms of humans with emphasis on organisms seen in a clinical laboratory. Principles and methods of clinical laboratory diagnosis of infections and diseases caused by these organisms are studied.