

MLS

Medical Laboratory Science

**MLS 120 MEDICAL LABORATORY SCIENCE AS A CAREER. (1)**

Medical Laboratory Science encompasses multiple major and minor discipline areas thus offering various career opportunities. In this course, we will explore these discipline areas and career opportunities as well as discuss the changing roles of laboratory practitioners.

**MLS 400 LABORATORY TECHNIQUES AND PHLEBOTOMY. (2)**

Students will be introduced to basic clinical laboratory principles and techniques and provided an opportunity to learn and practice the skills necessary for obtaining a blood specimen by venipuncture and dermal puncture. This course includes a mandatory clinical phlebotomy training opportunity that provides the student with experience collecting venous blood specimens for laboratory testing. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 410 MEDICAL LABORATORY BIOCHEMISTRY. (3)**

This course provides the student with an understanding of biochemical systems in the body. During this course, the student will be able to describe how these systems work, the interaction between the systems and understand the consequences that occur when there is a disruption of a system. At the completion of this course, the journey through these metabolic pathways will provide a relevant and informative experience. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 420 CLINICAL IMMUNOLOGY AND SEROLOGY. (3)**

This course is designed to provide students with a comprehensive study of the immune system including principles of immunological and serological procedures, immunological disorders and diseases, and significance of laboratory methods used for diagnosis. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 430 CLINICAL MYCOLOGY AND PARASITOLOGY. (2)**

The study of clinically significant fungi and parasites. Included are the morphological characteristics, pathogenicity, epidemiological characteristics, laboratory testing and treatment. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 440 MOLECULAR TECHNIQUES. (3)**

This course focuses on the newest medical laboratory discipline known as molecular diagnostics. The content will include principles of molecular diagnostics, principles and procedures of molecular techniques, and the application of these techniques that aid in identification and diagnosis of conditions and disease states. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 450 MLS EDUCATION AND MANAGEMENT. (3)**

This course will focus on concepts of laboratory organization, principles of laboratory management, and fundamental instructional skills necessary for the entry-level medical laboratory scientist. Additional course topics include leadership, career planning, and professionalism. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 460 CLINICAL HEMATOLOGY. (3)**

This course is a study of the formed elements of the blood including the practice of routine and specialized test procedures. Anemias, leukemias and non-malignant disorders are discussed and emphasis is placed on the correlation of hematology test results with these diseases and disorders. Prereq: Admission to the Medical Laboratory Science Program or consent of instructor.

**MLS 461 CLINICAL MICROBIOLOGY. (3)**

The study of medically significant microbiology, including normal flora and pathogens. Lectures also cover microbial physiology, interactions between host and pathogenic microorganisms, and the clinical and epidemiological consequences of these interactions. Clinical bacteriology knowledge will be applied through case studies. Prereq: Admission to the Medical Laboratory Science Program or consent of instructor.

**MLS 462 CLINICAL CHEMISTRY. (3)**

This course focuses on the study of the theory and practice of routine and specialized clinical chemistry laboratory testing. This will include discussion of quality assurance issues and instrumentation principles, problem-solving scenarios, and an emphasis on accuracy and confidentiality of patient laboratory findings. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

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**MLS 463 IMMUNOHEMATOLOGY.**

**(3)**

This course consists of the primary principles and practices of blood banking which include blood group systems, antibody detection and identification, compatibility testing, quality control requirements, instrumentation, blood transfusion, donor selection, and component preparation. In addition, the course will focus on advanced immunohematology topics including transfusion therapy, apheresis and component therapy, hemolytic diseases, histocompatibility (HLA), testing, and federal regulation of blood banking. Prereq: Admission to the Medical Laboratory Science Program or consent of instructor. This course is a Graduation Composition and Communication Requirement (GCCR) course in certain programs, and hence is not likely to be eligible for automatic transfer credit to UK.

**MLS 464 BODY FLUIDS AND HEMOSTASIS.**

**(2)**

This course is a combination of three minor medical laboratory disciplines including Urinalysis, Body Fluid Analysis, and Hemostasis. Urinalysis will include a comprehensive study of the urinary system, principles and methods of testing urine, and urinary disorders or diseases. Body Fluid Analysis will include a study of the various fluids analyzed in the laboratory, principles and methods of testing these fluids, and any associated diseases. Hemostasis is the study of blood coagulation and will include the study of this process, principles and methods of testing, and hemostatic disorders and diseases. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 465 CLINICAL HEMATOLOGY LABORATORY.**

**(2)**

Laboratory experiences will provide students with the practice of clinical hematology testing. Experiences will include testing with manual and automated procedures, instrumentation principles, role of quality assurance, and the promotion of problem-solving skills. Special emphasis will be placed on the relationship of clinical hematology test results and associated disease states. Prereq: Enrollment in or successful completion of MLS 460.

**MLS 466 CLINICAL MICROBIOLOGY LABORATORY.**

**(2)**

Basic techniques will be practiced in the student laboratory and conventional microscopic, cultural and immunologic techniques used for the isolation and identification of microorganisms, that are pathogenic to humans, will be reviewed. Prereq: Enrollment in or successful completion of MLS 461.

**MLS 467 CLINICAL CHEMISTRY LABORATORY.**

**(2)**

This laboratory course includes various basic laboratories associated with the study of clinical chemistry theory and problem-solving. Laboratories will include the study of assays for routine clinical chemistry testing as well as more specialized testing. Students will perform these assays under simulated conditions and will abide by best laboratory practices. Safety and quality control of all procedures will be expected from students. Prereq: Enrollment in or successful completion of MLS 462.

**MLS 468 IMMUNOHEMATOLOGY LABORATORY.**

**(2)**

Clinical laboratory practice in blood banking procedures and testing. Laboratories will include blood group system identification, antibody detection and identification, compatibility testing; quality control testing, and an introduction to immunohematology (blood bank) instrumentation. Prereq: Enrollment in or successful completion of MLS 463.

**MLS 469 BODY FLUIDS AND HEMOSTASIS LABORATORY.**

**(2)**

Laboratory experiences will provide students with the practice of urinalysis and other body fluid analysis, and hemostasis testing. Experiences will include testing with manual and automated procedures, instrumentation principles, role of quality assurance, and the promotion of problem-solving skills. Special emphasis will be placed on the relationship of test results and associated disease states. Prereq: Enrollment in or successful completion of MLS 464.

**MLS 470 CLINICAL CORRELATIONS.**

**(3)**

This course is designed to review primary concepts taught in the major medical laboratory science disciplines. Reviews will be conducted by utilization of clinical and multi-disciplinary case studies, certifying mock examinations, comprehensive writing activity, and additional review assignments. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor. This course is a Graduation Composition and Communication Requirement (GCCR) course in certain programs, and hence is not likely to be eligible for automatic transfer credit to UK.

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**MLS 471 PROFESSIONALISM IN MEDICAL LABORATORY SCIENCE. (1)**

Medical Laboratory Science is an allied health profession and as such, this course is designed to address professionalism topics specific to Medical Laboratory Scientists. The course focuses on healthcare diversity, work place challenges, and career success. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 475 ADVANCED TOPICS IN MEDICAL LABORATORY SCIENCE (INDEPENDENT STUDY). (1-3)**

Independent study for undergraduate students with an interest in a specific problem, topic, or issue in Medical Laboratory Science. Prereq: Admission into the Medical Laboratory Science Program and consent of instructor.

**MLS 476 VARIABLE TOPICS IN MEDICAL LABORATORY SCIENCE. (1-3)**

In-depth study of a current problem or issue related to the medical laboratory science profession. Prereq: Admission into the Medical Laboratory Science Program or consent of instructor.

**MLS 480 CLINICAL HEMATOLOGY PRACTICUM. (1-4)**

This course consists of a supervised practicum in which students will integrate practice and theory of clinical hematology in a health care setting and expose them to the scope of work, variety of tests, and automation found within the hematology department. Laboratory, 35-40 hours per week. The number of credits will depend on the student's prior experience. Prereq: Successful completion of MLS 460 and MLS 465.

**MLS 481 CLINICAL MICROBIOLOGY PRACTICUM. (1-4)**

This course consists of a supervised practicum in which students will integrate practice and theory of clinical microbiology in a health care setting and expose them to the scope of work, variety of tests, and automation found within the microbiology department. Laboratory, 35-40 hours per week. The number of credits will depend on the student's prior experience. Prereq: Successful completion of MLS 461 and MLS 466.

**MLS 482 CLINICAL CHEMISTRY PRACTICUM. (1-4)**

This course consists of a supervised practicum in which students will integrate practice and theory of clinical chemistry in a health care setting and expose them to the scope of work, variety of tests, and automation found within the hematology department. Laboratory, 35-40 hours per week. The number of credits will depend on the student's prior experience. Prereq: Successful completion of MLS 462 and MLS 467.

**MLS 483 IMMUNOHEMATOLOGY PRACTICUM. (1-4)**

This course consists of a supervised practicum in which students will integrate practice and theory of immunohematology (blood bank) in a health care setting and expose them to the scope of work, variety of tests, and automation found within the immunohematology department. Laboratory, 35-40 hours per week. The number of credits will depend on the student's prior experience. Prereq: Successful completion of MLS 463 and MLS 468.

**MLS 485 SPECIAL TOPICS PRACTICUM. (1-3)**

This course offers students an opportunity to observe and learn in an area of clinical laboratory sciences not found in the routine laboratory. Laboratory, 35-40 hours per week. Prereq: Consent of MLS Program Director.