**Medical Laboratory Science**

**Course Descriptions**

**MLS 102 INTRODUCTION TO MEDICAL LABORATORY SCIENCES**

An introduction to principles and practices of cytotechnology, histotechnology and medical laboratory science and the professionals in these fields as members of the health care team. (1 credit)

**MLS 320 GENERAL LABORATORY PRACTICE**

An introduction to laboratory sciences, including laboratory safety, instrumentation, quality control, specimen collection (including phlebotomy techniques) and processing. An emphasis will be placed on urine analysis and the clinical application of urine examination. (2 credits)

**MLS 350 MANAGEMENT FOR LABORATORY SCIENCE**

An introduction to the principles of laboratory management with a focus on underlying managerial concepts that will assist the learner in application of this information to real-life situations. Learning units will cover four areas of management: Basic Principles and Organizational Structure, Human Resources, Finance, and Operations. (2 credits)

### MLS 370 PARASITOLOGY AND MYCOLOGY

A study of the structure, function, and diagnostic characteristics of clinically significant parasites, and fungi, related to pathogenicity, transmission, control, and host response. (4 credits)

##### MLS 371 PARASITOLOGY AND MYCOLOGY LABORATORY

Diagnostic microbiology I laboratory will focus on the study of the structure, function, and diagnostic characteristics of clinically significant parasites, and fungi. Specimen collection, microscopic observation and diagnostic procedures for the identification of pathogenic microbes will be emphasized. (1 credits)

##### MLS 372 DIAGNOSTIC MICROBIOLOGY

A study of the epidemiology, pathogenesis, and clinical significance of medically important bacterial agents involved in infectious disease processes. Discussion of diagnostic characteristics and methods used for laboratory identification of these organisms will also be emphasized. (3 credits)

##### MLS 373 DIAGNOSTIC MICROBIOLOGY LABORATORY

Diagnostic Microbiology 2 Laboratory will focus on medical bacteriology specimen collection and diagnostic procedures for the identification of clinically significant bacteria. Emphasis will be placed on application and integration of theory, practical application, and technical performance of laboratory skills in clinical bacteriology.
(1 credit)

**MLS 400 MOLECULAR DIAGNOSTICS AND VIROLOGY**

This course is a comprehensive introduction to the basic principles, theory, and laboratory techniques of the rapidly expanding field of molecular diagnostics. Laboratory application of molecular testing methods, including DNA extraction and PCR, will be practiced. The course will also cover the structure, function and diagnostic characteristics of clinically significant viruses. (3 credits)

**MLS 410 CLINICAL IMMUNOSEROLOGY**

This course will examine the principles of the immune response, the mechanisms of immunological disorders and infectious diseases, the methodology used in the detection of immunological conditions, and the correlation of test results to these diseases through lecture material and practical clinical experience. (3 credits)

**MLS 416 Hematology**

A study of normal and abnormal blood cell development, morphology, and function. Blood dyscrasias will be studied with emphasis on the biochemical and morphological changes involved in disease. (3 credits)

**MLS 417 Clinical Hematology Laboratory**

An introduction to a wide variety of hematology clinical laboratory procedures with an emphasis on accurate performance, theoretical basis of tests, and correlation of data to disease. (1 credit)

**MLS 422 CLINICAL CHEMISTRY**

Biochemical, physiological, and analytic aspects of organic and inorganic substances of clinical interest, including electrolytes, blood gases, proteins, enzymes, lipids, drugs, and hormones are presented through lecture, demonstration, and practical experience.

(6 credits)

**MLS 450 CLINICAL PRACTICUM I**

The first of two full-time clinical experiences. Practicing clinical laboratory scientists will supervise and teach students in basic laboratory procedures, including Urinalysis, Immunoserology, Hematology, and Clinical Chemistry. The students will be exposed to patients and usual workload in the hospital laboratory. (1 credit)

**MLS 460 ADVANCED CLINICAL SCIENCE**

Advanced lecture and discussion of Medical Laboratory Science, with emphasis on hemostasis, bacteriology, antibiotics, and transfusion medicine. Other current and special topics and guest lectures will be presented and may include: laboratory marketing strategies, financial management, role of the state public health department, flow cytometry. (5 credits)

**MLS 461 ADVANCED CLINICAL LABORATORY**

Taken in conjunction with MLS 460, this laboratory course is designed to provide the students with experience in advanced clinical laboratory technologies. Emphasis will be placed on hemostasis, antimicrobial susceptibility testing, transfusion medicine, and continuous assessment of laboratory services. (2 credits)

MLS 490 CLINICAL PRACTICUM II

The second of two full-time clinical experiences. Practicing clinical laboratory scientists will supervise and teach students in advanced laboratory procedures, including Hemostasis, Clinical Chemistry, Microbiology, and Transfusion Medicine. Students will be exposed to patients and usual workload in the hospital laboratory. (5 credits)

# MLS 495 ISSUES IN CLINICAL LABORATORY SCIENCE (CAPSTONE)

Exploration of issues that impact health care, particularly the laboratory professional. Includes writings on current issues in the profession, case-study presentations, and practice in teaching methods related to laboratory training and education. Students will work individually and/or in groups to perform literature research and apply it to preparation of a medical laboratory science project including a paper, presentation, and a professional poster. (3 credits)