GVSU MEDICAL LABORATORY SCIENCE PROFESSIONAL COURSE DESCRIPTIONS

All course objectives will be distributed to students with individual course syllabi.

MLS 320 - General Laboratory Practice and Instrumentation Credits: 3

An introduction to laboratory sciences, including laboratory safety, instrumentation, quality control, specimen collection, and processing. An emphasis will be placed on urine analysis and the clinical application of urine examination. Offered winter semester. Prerequisite: Admission into the MLS program.

MLS 340 – Hematology I Credits: 2

An introduction to normal blood cell development, morphology, and function, and a wide variety of clinical hematology laboratory procedures with an emphasis on accurate performance and theoretical basis of tests. An overview of theory and practical application of hemostasis, as it relates to the medical laboratory. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program. Corequisite: MLS 341.

MLS 341 – Hematology I Laboratory Credits: 1

An introduction to a wide variety of hematology and hemostasis clinical laboratory procedures with an emphasis on accurate performance, theoretical basis of tests, and correlation of test results to patients' health status. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program. Corequisite: MLS 340.

MLS 333 – Transfusion Medicine I Credits: 3

In this course, students will study foundational principles and techniques required for compatibility testing and other important transfusion medicine practices. Blood component collection, processing, management and distribution will also be discussed. Offered spring/summer semester. Prerequisite: MLS 405

MLS 350 - Management for Laboratory Science Credits: 2

This course is designed to teach the principles of laboratory management. It will 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. Offered winter semester.

MLS 374 – Clinical Microbiology I Credits: 3

A study of the structure, function and diagnostic characteristics of clinically significant parasites, fungi and select bacteria. A focus will be placed on workflow and the role microbiology plays in patient outcomes; including discussion of pathogenicity, transmission and control of microbes,

along with related host response. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program. Corequisite: MLS 375.

MLS 375 – Clinical Microbiology I Laboratory Credits: 1

The laboratory will focus on the study of the structure, function and diagnostic characteristics of clinically significant parasites, fungi and select bacteria. Microscopic observation and diagnostic procedures for the identification of pathogenic microbes will be emphasized. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program. Corequisite: MLS 374.

MLS 405 – Molecular Diagnostics and Immunology Credits: 4

This course is an overview of the principles, theory and laboratory techniques used in molecular diagnostics, immunology and virology. The course will cover the structure, function and diagnostic characteristics of clinically significant viruses and pathogens involved in immunologic diseases and the methodologies used in their detection. Offered winter semester. Prerequisite: Admission to the medical laboratory science (MLS) program.

MLS 422 - Clinical Chemistry Credits: 4

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. Offered fall semester. Prerequisites: MLS 320

MLS 423 - Clinical Chemistry Laboratory Credits: 2

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 demonstration, laboratory exercises, and practical experience. Offered fall semester. Prerequisite: MLS 320.

MLS 440 – Hematology II Credits: 2

A study of abnormal blood cell development, morphology, and function. Blood dyscrasias will be studied with emphasis on the biochemical and morphological changes involved in disease. In addition, hemostasis theory and practical application will be correlated to various disease states. Offered fall semester. Prerequisite: MLS 340 and MLS 341. Corequisite MLS 441.

MLS 441 – Hematology II Laboratory Credits: 1

A study and application of hematology and hemostasis clinical laboratory procedures and their use in diagnosis and treatment of various blood dyscrasias. This course will also introduce the study and interpretation of body fluids, including both normal and abnormal states. Offered fall semester. Prerequisites: MLS 340 and MLS 341. Corequisite: MLS 440.

MLS 444 –Transfusion Medicine II Credits: 2

This laboratory-based course will use hands-on experiences to reinforce basic transfusion medicine practices and techniques. It will also introduce alternative testing methods, advanced troubleshooting, and important test procedures and principles used and practiced in transfusion medicine. Offered fall semester. Prerequisite: MLS 333

MLS 474 – Clinical Microbiology II Credits: 3

An advanced bacteriology course covering clinically significant bacteria. A focus will be placed on infection site as a means of understanding the role the organism plays in disease development. Discussion of diagnostic characteristics, methods used for laboratory identification and antimicrobial susceptibility testing will also be emphasized. Offered fall semester. Prerequisite: MLS 374 and 375. Corequisite: MLS 475.

MLS 475 - Clinical Microbiology II Laboratory Credits: 1

This laboratory course focuses on diagnostic testing procedures used for the identification of clinically significant bacteria. It is designed to simulate the clinical laboratory setting and provide students with the hands-on experience and practice needed to build their skill and competency. Offered fall semester. Prerequisites: MLS 374 and MLS 375. Corequisite: MLS 474.

MLS 492 – Clinical Practicum Credits: 10

During this full-time clinical experience, practicing medical laboratory scientists will supervise and teach students in advanced laboratory procedures. All students will rotate through each laboratory department including hematology, hemostasis, urinalysis, clinical chemistry, microbiology, and transfusion services where they will be exposed to typical workloads in hospital settings. Offered winter semester. Prerequisite: Successful completion of previously required courses.

MLS 495 - Medical Laboratory Science Capstone Credits: 3

Exploration of issues that impact health care, particularly the laboratory professional. Includes in depth discussions of research literature and its relevance to medical laboratory science. Students will work individually and in groups to prepare a paper, presentation, and a poster. Offered fall and winter semester. Prerequisite: Senior standing in the Medical Laboratory Science Program. Corequisite: MLS 490.