**Medical Lab Science (MLS)**

**Courses**

**MLS 1113. Intro to Medical Laboratory Science. 4 Hours.**
Open to all students planning to apply for admission to the DSU Associate of Applied Science in Medical Laboratory Science program. Principles and applications to laboratory testing including safe practices for the laboratory practitioner, specimen quality assurance, phlebotomy, urinalysis, basic concepts in clinical immunology and serology testing. Students will also be introduced to urinalysis instrumentation. Course fee required. FA.

**MLS 1123. Principles of Hematology and Hemostasis. 5 Hours.**
Fundamental theories of hematopoiesis, hemostasis, routine laboratory evaluation of blood components using standard instrumentation and microscopic methods. Quality control is also discussed. Instrumentation, anemias, leukemias, and blood cell morphology are covered. Laboratory section will focus on hematology and coagulation tests using both manual and automated methods. Prerequisite: MLS 1113. SP.

**MLS 2211. Clinical Chemistry I. 5 Hours.**
Basic concepts and techniques in clinical chemistry and quality control utilizing manual and automated laboratory procedures. Emphasis on blood and body fluid assessments of carbohydrates, bilirubin, non protein nitrogen testing and electrolyte acid/base balance. Course fee required. Prerequisites: Admission to the AAS Program in Medical Laboratory Science; AND MLS 1113 AND MLS 1123. FA.

**MLS 2212. Clinical Microbiology I. 5 Hours.**
Introduces students to clinically significant bacteria including epidemiology, pathogenicity, and procedures for the traditional laboratory identification and antimicrobial testing. Course fee required. Prerequisites: Admission to the AAS Program in Medical Laboratory Science; AND MLS 1113 AND MLS 1123. FA.

**MLS 2213. Clinical Chemistry II. 5 Hours.**
Students will be given lectures on proteins, lipids, enzymology, therapeutic drug monitoring, toxicology, and basic endocrinology. Laboratory section will facilitate student learning by students applying theory to laboratory assays. Course fee required. Prerequisites: Admission to the AAS Program in Medical Laboratory Science; AND MLS 2211. SP.

**MLS 2214. Clinical Microbiology II. 5 Hours.**
Clinical mycology, virology, parasitology and miscellaneous clinical bacteria will be covered. The laboratory section will focus on traditional methods of identification of bacteria and parasites. Course fee required. Prerequisites: Admission to the AAS Program in Medical Laboratory Science; AND MLS 2212 (Grade C+ or higher). SP.

**MLS 2215. Prin of Immunohematology. 4 Hours.**
Covers the theory and principles of immunohematology relevant to blood group serology, antibody detection and identification, compatibility testing, component preparation and therapy in blood transfusion service, quality control, donor screening and phlebotomy, transfusion reactions and hemolytic disease of the newborn. Course fee required. Prerequisites: Admission to the AAS Program in Medical Laboratory Science; AND MLS 1113 AND MLS 1123. SP.

**MLS 2256. Clinical Practice Internship. 5 Hours.**
Students will rotate through various sections of the clinical laboratory of an affiliate of Dixie State University. They will perform patient testing and enter laboratory results in a laboratory information system as well as perform quality control and quality assurance procedures. Prerequisites: Admission to the AAS Program in Medical Laboratory Science; AND MLS 1113 AND MLS 1123. SU.

**MLS 3310. Advanced Immunohematology. 4 Hours.**
Required course for students in the Bachelor of Science Medical Laboratory Science Program. Students will revisit theory and applications of Immunohematology as well as clinical correlations regarding donor and patient transfusion history, blood groups, transfusion reactions, disease and treatments as related to transfusion medicine. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. FA.

**MLS 3314. Advanced Clinical Microbiology. 4 Hours.**
Required course for students in the Bachelor of Science Program in Medical Laboratory Science. Comprehensive study of clinical microbiology using the culture site approach including laboratory identification of pathogens by traditional manual methods. Molecular diagnostics will also be covered using current and evolving techniques. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. FA.

**MLS 3323. Adv Hematology/Hemostasis. 4 Hours.**
Required course for students in the Bachelor of Science program in Medical Laboratory Science. Students will correlate hematology and hemostasis parameters and patient history with related disease processes. Theory and methodology will also be covered. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.
MLS 3330. Advanced Clinical Chemistry. 4 Hours.
Required course for students in the Bachelor of Science Medical Laboratory Science program. Students will perfect problem-solving skills in the correlation of clinical chemistry test results to organ-related diseases such as renal, hepatic, and endocrine diseases. Students will learn how to use clinical correlation as a quality assurance tool to detect patient testing errors while also matching patient history and laboratory results to disease processes. Therapeutic drug monitoring and toxicology studies are also covered. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 3555. Research Seminar. 2 Hours.
Required course for students in the Bachelor of Science program in Medical Laboratory Science. Addresses research methods in the clinical sciences and reviews accepted policies from the National Institutes of Health on informed consent, institutional review boards, and clinical trials. Students will read and interpret studies in the clinical laboratory sciences, comment on problems with studies, and note the further work needed in the respective area of research. Students will present a study, highlighting the research questions answered, methods employed, and relevance to other studies. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 4020. MLS Capstone. 1 Hour.
Students will learn resume writing and take a mock registry examination in preparation for Board of Certification Exam by the American Society for Clinical Pathology. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 4110. Laboratory Management/Edu. 2 Hours.
Students will learn managerial problem solving, finance, and budgeting. Lean and Six Sigma techniques, leadership styles, and education/training relevant to the clinical laboratory. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. FA.

MLS 4330. Clinical Chemistry Practice. 4 Hours.
Students will rotate through the chemistry laboratory of a hospital and perform analyses and quality control on a variety of automated instruments. Students will also enter results on a laboratory information system. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 4410. Clinical Immunohematology Prac. 4 Hours.
Students will rotate through a hospital blood bank performing blood typing, antibody identification, crossmatching, fetal screens, elutions and will observe blood components being issued for transfusion. Students will enter results into a laboratory information system. Quality control tasks will also be performed. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 4414. Clinical Microbiology Practice. 4 Hours.
Students will rotate through a medical center/hospital microbiology department performing identification of organisms from a variety of specimens and body fluids. Students will enter results into a laboratory information system and perform quality control tasks. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.

MLS 4423. Clinical Hematology Practice. 4 Hours.
Students will rotate through a hematology laboratory in a hospital where they will analyze samples using both automated and manual methods. Analyses in coagulation will also be covered. Students will enter results into a laboratory information system. Quality control tasks will also be carried out by students. Prerequisite: Admission to the Dixie State University Bachelor of Science Program in Medical Laboratory Science. SP.