Post-baccalaureate Certificate in Chemistry For Medical Laboratory Science Course Descriptions:

**MLS 4118: Laboratory Operations.** 1 credit. Basic concepts applicable to all areas of the clinical laboratory. Quality assurance and quality control, laboratory safety, including federal regulations, and related topics.

**MLS 4140: Clinical Laboratory Management.** 3 credits. Basic concepts of laboratory management, including organizational principles, financial management of resources, decision-making and problem-solving skills, human resource management.

**MLS 4141: Immunology and Serology.** 3 credits. Principles of the immune system’s components, functions, interactions with microorganisms, and the clinical applications of immunologic assays to human health and disease.

**MLS 4145: Clinical Biochemistry I.** 3 credits. This course studies the methodologies employed in the chemical analysis of human blood and body fluids. This includes an examination of the fundamentals of measurement and the principles of instrumentation as they relate to the assay of each analyte studied. In addition, the laboratory results are correlated with the clinical significance and pathophysiology that may generate changes in the analyte. Throughout the course, the quality assurance measures required to ensure reliability and validity of the laboratory results will also be emphasized.

**MLS 4151: Molecular Diagnostics.** 3 credits. The advances in scientific technology have expanded the interest and applicability of nucleic acid based analysis within clinical diagnostic laboratories and routine screening procedures. The Molecular Diagnostics course is an introduction to the molecular techniques used to diagnose human diseases. The course will emphasize the technology, theory, and methodology of specific molecular protocols that can be utilized within a clinical laboratory setting to aid in disease diagnosis, including those of genetic, oncogenic, and infectious origin.

**MLS 4155: Clinical Biochemistry II.** 2 credits. This second course in clinical biochemistry continues the study of the measurement and interpretation of chemical constituents in human blood and body fluids. The laboratory results of each analyte are correlated with the clinical significance and pathophysiology, which may generate changes in the analyte. Throughout the course, the quality assurance measures required to ensure reliability and validity of the laboratory results will also be emphasized.

**MLS 4161: Clinical Biochemistry Practicum.** 4 credits. The Clinical Biochemistry Practicum is a 4-week, required clinical rotation for students in the BSHS in MLS or the post-baccalaureate MLS and Clinical Chemistry certificate programs. During this practicum course, the student will actively engage in applying the medical knowledge and clinical skills gained in the didactic Clinical Biochemistry I (MLS 4145) and Clinical Biochemistry II (MLS 4155) courses.