Course Description

MLT1610L | Clinical Chemistry 1 Laboratory | 2.00 credits

Performance of chemistry procedures on body fluids with emphasis on manual and automated instrumentation. Prerequisite: CHM1025L.

Course Competencies:

Competency 1: The student will demonstrate knowledge of the principles and practices of clinical chemistry by:

1. Determining and applying appropriate safety procedures in the laboratory
2. Describing the concepts, components and methods for Quality Control and Quality Assurance
3. Determining common sources of error in Clinical Chemistry Analysis
4. Recognizing proper specimens for analysis in Clinical Chemistry
5. Understanding the components, methodologies, and operation of common Clinical Chemistry analyzers
6. The student understands that all practices are carried out with the patient's health and welfare at the forefront
7. Practicing laboratory safety when working in the chemistry laboratory
8. Selecting proper specimens for analysis
9. Performing testing on quality control material
10. Operating available Clinical Chemistry analyzers/instrumentation

Competency 2: The student will demonstrate knowledge of different laboratory analytes by:

1. Explaining the clinical significance and application of the following:
   a. Glucose
   b. Glycosylated hemoglobin
   c. Blood urea nitrogen
   d. Creatinine
   e. Uric acid
   f. Electrolytes (Na, K, Cl, CO_2)
   g. Blood gasses
   h. Phosphorus
   i. Magnesium ammonia
   j. Trace elements
   k. Iron and iron binding capacity
2. Pipetting correct sample and reagent volumes utilizing proper techniques and devices
3. Performing testing on Clinical Chemistry analytes using available instrumentation and kits/reagents
4. Developing accurate laboratory test results
5. Understanding that test results are developed and reported while maintaining the patient's privacy

Competency 3: The student will demonstrate an understanding of Pathophysiology by:

1. Explaining the functions, ailments and laboratory tests used to diagnose the following:
   a. Diabetes
   b. Kidney Disease
   c. Water, Electrolyte Balance
   d. Acid Base Balance
2. Selecting and performing the appropriate test for the diagnosis and/or monitoring of the following:
   a. Diabetes
   b. Kidney Disease
   c. Water, Electrolyte Balance
   d. Acid Base Balance

Learning Outcomes:

- Communicate effectively using listening, speaking, reading, and writing skills
- Use quantitative analytical skills to evaluate and process numerical data

- Solve problems using critical and creative thinking and scientific reasoning
- Formulate strategies to locate, evaluate, and apply information
- Demonstrate knowledge of ethical thinking and its application to issues in society
- Create strategies that can be used to fulfill personal, civic, and social responsibilities
- Use computer and emerging technologies effectively
- Demonstrate an appreciation for aesthetics and creative activities