Miami Dade College

Course Description

MLT1040L | Fundamentals of Laboratory Operations | 1.00 credit

This course will introduce students to the fundamental principles, skills and concepts of the major areas in the Clinical Laboratory. This includes introduction to blood collection, handling of specimens, professional ethics, medical terminology, safety and regulatory practices.

Course Competencies:

Competency 1: The student will demonstrate knowledge, comprehension, and application in venipuncture techniques by:

1. Using proper patient identification techniques
2. Identifying the proper tube color and anticoagulant for the test
3. Listing the steps for a proper venipuncture and finger stick procedure
4. Performing a venipuncture and finger stick procedure
5. Adhering to OSHA and Standard (Universal) Precautions guidelines

Competency 2: The student will demonstrate knowledge, comprehension, and application in the use of the laboratory equipment by:

1. Recognizing, identifying and using the parts of the microscope
2. Using various pipettes according to laboratory guidelines
3. Recognizing and identifying the different types of glassware and their use
4. Operating a centrifuge

Competency 3: The student will demonstrate knowledge, comprehension, and application of responsible and ethical behavior in the profession by:

1. Understanding pre-analytical, analytical and post analytical sources of error in the laboratory
2. Understanding Patient Safety Goals
3. Recognizing HIPPA violations
4. Recognizing and identifying the different departments and their function
5. Recognizing and identifying the laws governing clinical laboratories
6. Recognizing and identifying the importance of proficiency testing

Competency 4: The student will demonstrate knowledge, comprehension, and application in reference to safety guidelines by:

1. Recognizing and identifying the proper storage and disposal of biohazardous and chemical materials
2. Recognizing and identifying the proper personal protective equipment and engineering controls for use in potential exposure situations
3. Using proper hand washing technique
4. Adhering to OSHA and Standard (Universal) Precautions guidelines

Competency 5: The student will demonstrate knowledge, comprehension, and application of basic quality control techniques by:

1. Calculating the mean of a group of data
2. Calculating the standard deviation of a group of data
3. Calculating the coefficient of variation of a group of data
4. Examining a Levey-Jennings chart for troubleshooting problems

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
- Demonstrate knowledge of ethical thinking and its application to issues in society

- Demonstrate knowledge of diverse cultures, including global and historical perspectives
- Demonstrate an appreciation for aesthetics and creative activities
- Describe how natural systems function and recognize the impact of humans on the environment