



UNMC CLS Program Basic Laboratory Operations Course Overview

Basic Laboratory Operation Modules (6 modules)

Laboratory Safety (1 CEU)

- Overview of basic laboratory safety, including biosafety, chemical, electrical, ergonomic, fire and UV

Introduction to Laboratory Testing (3 CEU)

- Overview of laboratory analytic process
 - Qualitative vs. quantitative tests; reference ranges; testing phases – pre-analytical, analytical, post-analytical; quality assurance; typical laboratory assays and written procedure guidelines
- Overview of specimen handling and processing
 - Basic laboratory supplies and equipment; blood and other specimen collection guidelines; specimen handling considerations
- Basic laboratory calculations
 - Units of measure and conversions; simple and serial dilutions; general considerations for performing calculations

Pipetting Techniques and Volumetric Measurements (1 CEU)

- Overview of different types of pipettes and proper technique of using each

Reagent Preparation (1 CEU)

- Overview of chemicals and reagents
 - Preparation, grades, purity, nomenclature, applications for use
 - Solutions (percent, normality and molarity) and concentrations calculations

Microscope Principles (1 CEU)

- Overview of microscopy; components, proper use and troubleshooting of Brightfield microscopes

Quality Control (3.5 CEU)

- Parameters of QC (precision, accuracy, reliability); selection of QC materials; target values; statistics of QC (variation, central tendency, mean, mode, median, standard deviation, coefficient of variation, confidence limits); internal QC (Levey-Jennings plot – trends, shifts, outliers); QC decisions; predictive value of test results