

J. Sargeant Reynolds Community College
Course Content Summary

Course Prefix and Number: CHM 235 **Credits:** 4

Course Title: Quality Control for Industry and Life Sciences

Course Description

This course covers the regulatory and quality requirements for the pharmaceutical, biotechnology and life sciences industries with an emphasis on standard operating procedures (SOP), Food and Drug Administration (FDA), International Organization for Standardization (ISO) and safety. The laboratory portion includes calibration, standards, reagent blanks, and detection limits using Gas Chromatography Mass Spectrometry (GCMS), High Performance Liquid Chromatography (HPLC) and Nuclear Magnetic Resonance (NMR). Lecture 3 hours. Laboratory 3 hours. Total 6 hours per week.

General Course Purpose

To equip individuals with the knowledge and skills necessary to ensure the accuracy and reliability of laboratory testing. Key objectives include understanding quality control (QC) principles, implementing quality control procedures, utilizing statistical tools for analysis, and maintaining equipment. Focus also includes error detection, documentation, and continuous improvement of laboratory quality.

Course Prerequisites/Corequisites

Prerequisites BIO 147 with a C or better, CHM 111 with a C or better and MTH 161
Co requisite CHM 112

Course Objectives

Upon completing the course, the student will be able to:

- Apply regulatory and quality standards such as Good Laboratory Practices (GLP), Food and Drug Administration (FDA) requirements, International Organization for Standardization (ISO) standards, and established laboratory safety protocols.
- Implement Standard Operating Procedures (SOPs) for chemical analyses, including calibration, reagent preparation, recordkeeping, and quality control checks.
- Communicate professionally through written laboratory reports and technical documentation that clearly explains experimental methods, data analysis, and conclusions.
- Demonstrate workplace competencies valued in laboratory environments, including technical writing proficiency, teamwork, ethical decision-making, adaptability, and effective problem solving.

Major Topics to be Included

- Fundamentals of quality control
- Quality control procedures for sample preparation
- Good Laboratory Practices (GLP), Food and Drug Administration (FDA) requirements, International Organization for Standardization (ISO) standards
- Error management
- Equipment management

- Documentation and reporting
- Quality standards for chemical laboratory equipment

Effective Date/Updated: October 2025