Virginia Western Community College
CHM 261
Biochemistry Lab

Prerequisites
CHM 111 and CHM 112 or equivalent.

Corequisites
CHM 260

Course Description

Provides hands on lab experiences designed to reinforce the fundamentals of biological chemistry taught in CHM 260 such as biochemistry assays, enzyme kinetics, enzyme purification, chromatography, electrophoresis and use of western blots.

Semester Credits: 1 **Laboratory Hours: 3**

Required Materials

Textbook:
Fundamental Laboratory Approaches for Biochemistry and Biotechnology. Ninfa, Ballou & Benire. 2nd edition. Wiley. ISBN: 9780470087664

Course Outcomes

At the completion of this course, the student should be able to:

- Understand the basic equipment of the biochemistry lab and be proficient in biochemistry lab techniques.
- Understand how to isolate and purify proteins by various techniques including chromatography.
- Calculate the concentration of proteins in solutions.
- Perform a gel electrophoresis experiment.
- Separate various cellular components.
- Determine enzyme kinetics experimentally.
- Experimentally study ligand binding to proteins.
- Perform an SDS-PAGE separation of proteins and determine protein molecular weights.
- Perform a western blotting procedure.
- Gain proficiency with various laboratory equipment such as pipets, centrifuges, gel electrophoresis, and column chromatography.
- Perform polymerase chain reaction (PCR).

Laboratory Topics

	Topics	Chapter
1	Introduction and Solutions	2
2	Spectroscopic Methods	3
3	Protein Concentration	4
4	Chromatography	5
5	Isolation of EcoRI Restriction Enzyme- handout	-
6	Cholesterol gene/DNA gels- handout	-
7	Biofuels and Enzymes- handout	-
8	Subcellular Fractionation	8
9	PAGE Separation of Proteins and Rf Calculation	6
10	Polymerase Chain Reaction- Detection of Genetically Modified Organisms	14
11	Western blotting - handout	-

Notes to Instructors

None.