MiraCosta College

BTEC 206 - PRINCIPLES OF SEPARATION AND HPLC

Units Lecture	0.80	**Units Lab**	0.30	**Units Total**	1.00
Total Hrs Lecture	12.00	**Total Hrs Lab**	12.00	**Total Course Hrs**	24.00

COURSE DESCRIPTION

This advanced module provides skills in the separation of biomolecules from complex mixtures using High Performance Liquid Chromatography (HPLC). Instruction will focus on understanding the principles of separation, acquiring skills in the separation of various biomolecules, and analyzing the outcome for the purpose of determining system performance and biomolecular purification. The course assumes some prior knowledge of solution preparation, assays, and spectroscopy.

ENROLLMENT RESTRICTIONS

PREREQUISITES	*COREQUISITES*	*ADVISORIES*
None	None	BTEC 110

OUTLINE OF COURSE CONTENT

The course will address the following topics:

Documentation and maintenance of lab notebook: 1
Laboratory safety and hazard awareness: 1
Basic principles of chromatography: 4
HPLC performance: 6
HPLC optimization: 4
Evaluation of data/outcomes: 4 Assessment: 4

PERFORMANCE OBJECTIVES

Upon successful completion of this course, students will be able to do the following:

1. Demonstrate ability to follow instructions for laboratory procedures.
2. Maintain a lab notebook documenting lab procedures, calculations and results.
3. Apply basic knowledge of a biomolecule's properties, such as cellular localization, size, charge and function towards the goal of laboratory purification of the molecule and relate these properties to the successful use of HPLC.
4. Operate an HPLC instrument for the purpose of purification of a biomolecule.
5. Apply basic knowledge of HPLC to select or modify components and/or protocols related to the HPLC system to achieve optimum separation of biomolecules.
6. Interpret output from an HPLC run in terms of resolution, peak behavior, relative quantity, and identity of the desired biomolecule.
7. Collect data and calculate the yield, specific activity, and fold-purification of a given biomolecule after purification by HPLC.