



BTEC 204 - RECOMBINANT DNA

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 course provides skills in recombinant DNA technology used to analyze and manipulate DNA in the biotechnology laboratory. Students learn about the process of cloning DNA and acquire the skills necessary to cut, piece together, and introduce new DNA molecules into prepared host bacterial cells.

ENROLLMENT RESTRICTIONS

PREREQUISITES

None

COREQUISITES

None

ADVISORIES

BTEC 110

OUTLINE OF COURSE CONTENT

The course will address the following topics:

All topics are addressed in the lecture and applied to lab activities.

- I. Lab notebook
 - A. Documentation
 - B. Maintenance.
- II. Laboratory procedures
 - A. Safety
 - B. Hazard awareness.
- III. Recombinant DNA technology
 - A. Restriction digestions
 - B. Ligations
 - C. Introduction of foreign DNA into host cells
 - D. Agarose gel electrophoresis
 - E. Purification from gels
 - F. Isolation and purification from bacterial cells
 - G. Transformation of bacterial cells and cloning DNA.

PERFORMANCE OBJECTIVES

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

- 1). Demonstrate the ability to follow laboratory procedures, including those relating to lab safety and hazard awareness
- 2). Document lab procedures, calculations, measurements, observations, and analyses in a laboratory notebook
- 3). Identify the basic components and principles of DNA restriction digestions, ligations, and the introduction of foreign DNA into host cells
- 4). Perform a DNA restriction digestion
- 5). Examine and interpret the outcome of a restriction digestion
- 6). Demonstrate and follow protocols to introduce foreign DNA into host bacterial cells (transformation)
- 7). Perform procedures to isolate, purify, and examine host and recombinant DNA from bacterial cells.