

# SHORELINE COMMUNITY COLLEGE BIOTECHNOLOGY CAPSTONE PROGRAM

## SCENARIO ISSUE TO BE ADDRESSED

Upon completion of the Biotechnology certification program, students should understand how the various course concepts and techniques are related to each other and to their application in industry.

### *Strategies to be Implemented*

At the beginning of the quarter in which students complete internships, students will be given a detailed Capstone Project.

Sample Project Title: “Biotechnology Techniques: Integration and Application”

### *Project Objectives*

- To promote student review of the concepts and techniques that were learned during the Biotechnology Program courses.
- To promote a critical analysis and an in depth understanding about the relationships between the concepts and techniques, which were learned during the program courses.
- To promote an understanding about how the techniques and methods are applied in a research and an industry setting.
- To practice skills associated with writing a formal scientific report.
- To review use of the vocabulary associated with Biotechnology and related fields.
- To practice using the scientific method in the context of typical biotechnology applications.

### *General Description*

The project will involve a scenario in which students are given a hypothetical “Gene X” which encodes a potentially interesting pharmaceutical product. Students will be given two goals:

- To devise a technical strategy that would enable large-scale expression and production of the gene product. Included in the production goal will be questions relating to quality control analysis and documentation.
- To devise a technical strategy that would enable research for the study of the structure and the function of the gene product. Included in the research goal will be questions relating to cell biology, tissue culture, protein purification, protein analysis, and immunological techniques.

### *Student Product and Assessment*

Students will submit a report to answer the questions posed in the assignment. The report will contain accurate figures and written text that is organized and presented in a professional manner.

At the midpoint of the quarter, students will be required to meet as a class in order to submit an initial draft of their capstone project report and to ask questions about the project in order to proceed efficiently.

At the end of the quarter, students will meet again to submit their project reports. Also, at this meeting, students will be required to work together to produce a detailed “concept map” which shows the relationships between the techniques they have learned and used during their internships.

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