



## 2011-2012 Career Planning Guide

### Biotechnology Lab Specialist

**Shoreline Community College**  
**16101 Greenwood Avenue North**  
**Shoreline, Washington 98133**

Length of Program: 36-37 credits, 4 quarters  
Completion Award: Certificate of Completion  
Program Advisors: Guy Hamilton, 206 546-4786, Rm 2809  
[ghamilto@shoreline.edu](mailto:ghamilto@shoreline.edu)   <http://www.shoreline.edu/biotech>

#### **Approximate Quarterly Costs:**

Check quarterly class schedule for Tuition Table  
Parking and additional instructional fees per quarter: \$15-\$85  
Book costs vary widely. Most full-time students spend an average of \$200 per quarter for books.  
Supplies and equipment: \$10  
Lab Fee: \$15  
Enrollment: Summer, Fall, Winter, Spring.

#### **PROGRAM DESCRIPTION**

Biotechnology is an exciting and rapidly expanding field. Biologists and other scientists working in research and development use biotechnology techniques for the production of genetically engineered drugs, gene therapy, microbiology, virology, forensic science, agriculture and environmental science. The Biotechnology Laboratory Specialist Program prepares students for work in laboratories involved in any aspect of these processes. The curriculum provides a foundation in a variety of math and science disciplines including algebra, statistics, chemistry, biology, microbiology and computer science. Students gain a working knowledge of molecular biology, recombinant DNA, immunology, protein purification and tissue culture -- both through classroom lectures and "hands-on" laboratory learning experiences. Biotechnology laboratories are found in educational institutions, public health facilities and private corporations.

#### **PROGRAM OUTCOMES**

Students who successfully complete this program will be able to:

1. Assist research scientists in the laboratory.
2. Perform technical procedures such as cell counting, solution and media preparation, DNA extraction and characterization, electrophoresis, cloning, polymerase chain reaction, ELISA and other immunology techniques, maintenance of cell lines transfection, protein isolation and purification using various chromatographic techniques.
3. Conduct research experiments following operating and safety protocols and apply knowledge of theory and techniques to troubleshoot appropriately.
4. Analyze and display data using computer technology including the Internet and software designed for maintaining a database, preparing spreadsheets, conducting statistical analysis, Bioinformatics and graphical display.
5. Manage laboratory activities including record keeping, ordering supplies and preparing reports.

#### **CAREER OPPORTUNITIES**

The career outlook in the field of biotechnology is very promising. The proliferation of new technologies is expanding employment opportunities in research, production, development and manufacturing. The Seattle metropolitan area is one of the nation's leading employers of laboratory specialists and with over 100 biotechnology related facilities. The field offers opportunities for advancement if you remain current and take advantage of the many opportunities for continuing education.

#### **POTENTIAL POSITIONS INCLUDE**

Laboratory Assistant, Lab Specialist or Research Assistant. Potential employers may include university or privately owned biotechnology research and production labs, pharmaceutical labs, criminal labs, fisheries, oceanographic and other nature resource management organizations. Entry level salaries range from \$25,000 to \$30,000 depending on previous education and experience. With experience, lab specialists may be promoted to supervisory positions.

## Career Ladder Short-Term Programs Biotechnology Lab Specialist

### APPLICATION REQUIRED

An application is required to enter the four quarter sequence of biotechnology classes BIOL 265/266, 270/274, 275, 277, 279, 249, 280 and 290. Please see advisor for application form.

### PROGRAM PREREQUISITES

Meet with an advisor to identify courses from the list below that must be taken before starting the Core Sequence of Biotech classes. Students entering the program must have received at least a 2.0 in each of these classes (or an equivalent course) within the last 5 years. Professional experience will also be considered.

<u>Course</u>	<u>Cr.</u>	<u>Gr.</u>
ENGL& 101* English Composition I <b>or</b>		
BUSTC 215* Prof Communications	5	___
CHEM& 121 Intro to Chemistry	5	___
BIOL& 211 Majors Cellular Biology	5	___
CIS 105 Computer Applications	5	___
CHEM& 131 Intro to Organic/Biochem	5	___
MATH& 146 Introduction to Stats	5	___
BIOL& 260 Microbiology	5	___
BIOL 110 Biotech:Science Apps/Imp	3	___

COMMENTS: \_\_\_\_\_

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### CORE BIOTECH SEQUENCE

<u>Fall Quarter</u>			<u>Cr.</u>	<u>Gr.</u>
BIOL 270	Molecular Biology Techni	3	___	
BIOL 274	Molecular Biology Lab	3	___	
BIOL 265	Media & Solution Prep I	2	___	
BIO 285*	Bioinformatics	2	___	

<u>Winter Quarter</u>			<u>Cr.</u>	<u>Gr.</u>
BIOL 275	Recombinant DNA Techniq	6	___	
BIOL 280	Seminar in Biotechnology	1	___	
BIOL 266	Media & Solution Prep II	2	___	
BIOL 286*	Molecular Diagnostics	2	___	

<u>Spring Quarter</u>			<u>Cr.</u>	<u>Gr.</u>
BIOL 277	Immunology	5	___	
BIOL 279	Biotechnology Techniques	3	___	
BIOL 287*	HPLC	2	___	

<u>Summer Quarter</u>			<u>Cr.</u>	<u>Gr.</u>
BIOL 249	Tissue Culture/Staining	4	___	
BIOL 288*	Flow Cytometry	2	___	
BIOL 290	Internship	1-2	___	

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**Total Credits Required      36-37**

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\*Students must take at least 3 of these classes to complete the certificate.

Every effort has been made to ensure the accuracy of the information in this publication. However, the information is subject to change without notice, and final career decisions are the responsibility of the reader.