



## 2011-2012 Career Planning Guide

### BIOTECHNOLOGY LAB SPECIALIST

Associate in Applied Arts and Sciences Degree (A.A.A.S.) or  
Associate in Arts and Sciences Transfer Option (A.A.S.-T)

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#### Shoreline Community College

16101 Greenwood Avenue North

Shoreline, Washington 98133

Length of Program: 94.5 - 95.5 credits, 7 quarters

Completion Award: A.A.A.S. Degree or AAS-T

#### Program Advisor:

Guy Hamilton, 206 546-4786 Rm 2809

[ghamilton@shoreline.edu](mailto:ghamilton@shoreline.edu)

<http://elmo.shoreline.ctc.edu/biotech>

#### Approximate Quarterly Costs

Check quarterly class schedule for Tuition Table

Parking Fee Per Quarter (daytime) \$15

Supplies and Equipment \$10

Lab Fees \$15

Additional Institutional Fees \$25-\$85

Book costs vary widely. Most full-time students will spend an average of \$200 per quarter for books.

**Enrollment:** Summer, Fall, Winter, Spring

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#### 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 should 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 natural 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. For employment outlook, see the U.S. Dept. of Labor Occupational Outlook Handbook at <http://www.bls.gov/OCO/>.

# BIOTECHNOLOGY LAB SPECIALIST

Shoreline Community College: A.A.A.S. Degree or A.A.S.-T. Option

## PROGRAM PREREQUISITES/ADMISSION STANDARDS

A high school diploma or GED

College level mathematics (MATH 099 Intermediate Algebra) is a prerequisite for MATH& 146.

## APPLICATION REQUIRED

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

## PROGRAM REQUIREMENTS

### FIRST YEAR

<u>Fall Quarter</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	___
MCS 105*	Intro to Multicul Stud		
	<b>or</b>		
CMST 203	Commun Across Difference	5	___

<u>Winter Quarter</u>		<u>Cr.</u>	<u>Gr.</u>
BIOL& 211	Majors Cellular Biology	5	___
CIS 105	Computer Applications	5	___
BIOL 110	Biotech:Science Apps/Imp	3	___

<u>Spring Quarter</u>		<u>Cr.</u>	<u>Gr.</u>
CHEM& 131	Intro to Organic/Biochem	5	___
MATH& 146	Introduction to Stats	5	___
BIOL& 260	Microbiology	5	___
BUS 105*	Essentials of Human Rela	2	___

*Courses marked with an \* are the General Education/Related Instruction requirements for this program. See the approved list of General Education Requirements.*

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

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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.

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### SECOND YEAR

<u>Fall Quarter</u>		<u>Cr.</u>	<u>Gr.</u>
CHEM 171	Gen Inorganic Chem I	4	___
CHEM 181	Gen Inorganic Chem I-L	2.5	___
BIOL 270	Molecular Biology Techni	3	___
BIOL 274	Molecular Biology Lab	3	___
BIOL 265	Media & Solution Prep I	2	___

<u>Winter Quarter</u>		<u>Cr.</u>	<u>Gr.</u>
CHEM 172	Gen Inorganic Chem II	4	___
CHEM 182	Gen Inorganic Chem II-L	2.5	___
BIOL 275	Recombinant DNA Techniq	6	___
BIOL 280	Seminar in Biotechnology	1	___
BIOL 266	Media & Solution Prep II	2	___

<u>Spring Quarter</u>		<u>Cr.</u>	<u>Gr.</u>
CHEM 173	Gen-Inorganic Chem III	4	___
CHEM 183	Gen-Inorganic Chem III-L	2.5	___
BIOL 277	Immunology	5	___
BIOL 279	Biotechnology Techniques	3	___

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

**Total Credits Required 94.5 – 95.5**

This program is Associate of Applied Science-Technology (AAS-T) degree eligible. The AAS-T degree indicator, which will appear on your transcript, will enable students to transfer this degree directly to **some** four-year institutions. Please check with your program advisor for more specific information.

STUDENT NAME \_\_\_\_\_

STUDENT I.D. \_\_\_\_\_

### APPROVAL TO GRADUATE

ADVISOR APPROVAL \_\_\_\_\_ DATE \_\_\_\_\_

DIVISION DEAN APPROVAL \_\_\_\_\_ DATE \_\_\_\_\_

CREDENTIALS APPROVAL \_\_\_\_\_ DATE \_\_\_\_\_