

# BIOLOGICAL TECHNOLOGY – STEM CELL CULTURE – ASSOCIATE IN SCIENCE DEGREE, CERTIFICATE OF ACHIEVEMENT

Top Code:

0430.00

Courses that are part of the *Biological Technology - Stem Cell Culture* curriculum are designed to prepare students to work in the biotechnology industry by providing training in basic and advanced laboratory procedures as well as specialized training in stem cell culture techniques. This is an interdisciplinary program including courses and practical training in math, chemistry, and biology. Emphasis is placed on program participants developing the necessary employability skills and competency for working in a laboratory environment, specifically in biomedical and academic laboratories performing research in the field of stem cell biology and regenerative medicine.

The program offers classroom instruction in a working laboratory setting and cell culture facility and assistance in finding appropriate on-site internships providing practical work-based experience in the biotechnology industry. Students must be able to provide their own transportation in the final semester(s) to an internship site. Employment opportunities include: biomedical industry, academic research institutions, pharmaceuticals companies, and genetic engineering laboratories.

An A.S. degree is awarded upon completing the requirements to earn a Certificate of Achievement in Biological Technology - Stem Cell Culture as well the required GE units. A Certificate of Achievement is awarded upon completion of all required courses with a grade of C or better.

Recommended Preparation: BIOL 110 or equivalent, CHEM 022 or equivalent

## Program Outcomes

- Evaluate and write laboratory documents including SOPs, protocols, notebook documentation, and reviews of scientific research literature.
- Use, maintain, calibrate and/or validate standard laboratory equipment to perform stem cell culture and manipulation techniques.
- Be prepared for entry level technician positions in laboratories performing stem cell research in the biological technology industry and in research institutes.

## Requirements for the Certificate of Achievement

Code	Title	Units
<b>Required Courses</b>		
BIOL 102A	BIOLOGICAL TECHNOLOGY - BASIC TECHNIQUES	3

CHEM 001A	GENERAL CHEMISTRY AND CHEMICAL ANALYSIS I	5
STAT 018	STATISTICS FOR BEHAVIORAL AND SOCIAL SCIENCES	4
or STAT 050	ELEMENTARY STATISTICS	
or STAT 050H	HONORS ELEMENTARY STATISTICS	
ENGL 001A	READING AND COMPOSITION	4
or ENGL 001AH	HONORS READING AND COMPOSITION	
BIOL 102B	BIOLOGICAL TECHNOLOGY - ADVANCED TECHNIQUES	3
BIOL 102C	BIOLOGICAL TECHNOLOGY - CELL CULTURE TECHNIQUES	3
BIOL 010A	CELLULAR BIOLOGY, GENETICS AND EVOLUTION	5
PHSC 002	SCIENTIFIC METHOD AS CRITICAL THINKING	3
BIOL 038	CELL AND MOLECULAR BIOLOGY	4
BIOL 003	HUMAN BIOLOGY	3-4
or BIOL 039	MODERN HUMAN GENETICS	
or BIOL 010C	GENETICS	
or MICR 002	MICROBIOLOGY	
or BIOL 104B	MICROBIOLOGICAL APPLICATIONS USED IN BIOTECHNOLOGY	
BIOL 104A	APPLICATIONS OF FLUORESCENCE MICROSCOPY	2
BIOL 104E	SPECIALIZED TECHNIQUES AND INSTRUMENTATION IN BIOTECHNOLOGY	1
BIOL 102D	BIOLOGICAL TECHNOLOGY - LABORATORY INTERNSHIP	3
<b>Total Units</b>		<b>43-44</b>

## General Education Requirements for the Associate in Science Degree

- General Information (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/>)
- PCC Local Gen Ed (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#pcclocaltext>)
- CSU Breadth (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#csubreadthtext>)
- IGETC (<https://curriculum.pasadena.edu/academic-programs-leading-degree-certificate/#igetctext>)

Visit the Program Mapper (<https://pasadena-city.programmapper.ws/academics/interest-clusters/35afad1b-8598-4ecf-a320-0ed4834a7df8/programs/e33b7c90-85aa-ed8b-a07d-3df10f76bc9f/>) for a suggested sequence of courses.