

PROGRAM APPROVAL APPLICATION
NEW or SUBSTANTIAL CHANGE or LOCALLY APPROVED
(This application may not exceed 3 pages)

Fill In Form

Biological Technology	Fall 2016
_____	_____
Proposed Program Title	Projected Program Start Date
Pasadena City College	Pasadena Area Community College District
_____	_____
College	District

Contact Information

Salomon Davila	Dean of Economic and Workforce Development
_____	_____
Voting Member	Title
(626) 585-7682	SGDAVILA@pasadena.edu
_____	_____
Phone Number	Email

Goal(s) of Program (Check all that apply):

Career Technical Education (CTE)
 Transfer
 Other

Type of Program (Check all that apply):

Certificate of Achievement 12-17 (or 17-27 quarter) units
 Certificate of Achievement 18+ semester (or 27+ quarter) units
 Associate of Science Degree
 Associate of Arts Degree

Reason for Approval Request (Check One):

New Program
 Substantial Change
 Locally Approved

Program Information

04300.00
 _____ Recommended [Taxonomy of Program \(TOP\) Code](#)
 50-59
 _____ Units for Major-Degree
 60 + CofA
 _____ Total Units for Degree
 N/A
 _____ Required Units-Certificate

Written Form

1. Insert the description of the program as it will appear in the catalog. (See PCAH pp. 142 and 170)

The Biological Technology Program at Pasadena City College prepares students to work in entry level positions in the field of biotechnology. Emphasis is placed on program participants developing competencies for working in a laboratory environment, including; performing basic and advanced laboratory techniques; collecting, documenting, and analyzing data; and participating in short-term independent projects. This is an interdisciplinary program including courses and practical training in math, chemistry, biology, computer skills, and English. The core curriculum comprises instruction and hands-on training in general laboratory skills, advanced DNA and protein techniques, and mammalian cell culture procedures. Courses are taught in a working laboratory setting which allows students to also learn employability or soft skills as they work. Performance evaluations include assessment of documentation and laboratory skills as well as workplace competencies.

An A.S. degree is awarded upon completing the requirements to earn a Certificate of Achievement in Biological Technology 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.

2. Provide a brief rationale for the program.

Pasadena City College provides career and technical education in a variety of programs, including Biological Technology since 1997. In addition to a Certificate of Achievement in Biological Technology, the program initially offered an A.S. degree to students completing the required biotechnology courses and GE units. This application is to re-establish an A.S. degree in Biological Technology which somehow has been excluded from the Chancellor’s rolls over the past 15 years. With the current state-wide interest in aligning CTE Biotechnology training programs and curriculum, it is important to again be able to offer program participants an A.S. degree in Biological Technology to give students a competitive advantage in securing employment in the biotechnology industry.

3. Summarize the Labor Market Information (LMI) and employment outlook (including citation for the source of the data) for students exiting the program. (See PCAH pp. 85-88, 136, 147, 148, 165, 168, and 176)

The California Community Colleges *Doing What Matters for Jobs and the Economy* (DWM) program is focused on addressing the supply-demand gap of entry-level workers in regional life science and biotechnology industries through aligning the regional community college training programs. In October 2014, a report entitled “Supply and Demand Analysis, Life Sciences & Biotech Middle Skills Workforce In California” was prepared for the California Community College’s Chancellor’s Office by the Centers of Excellence for Labor Market Research (COEs), part of the DWM program, and representatives of the Life Sciences/Biotech Initiative. This recent labor market analysis for “middle skills” occupations, defined as jobs requiring a Bachelor’s degree or less, indicated that there are currently more jobs available in the biotech industry than qualified applicants. Employment statistics for middle skills occupations was summarized in the report as follows: 17,000 current employment (2013), 15% 5-year projected growth, \$20 median hourly wages, and 950 projected job openings per annum. The re-establishment of an A.S. degree in Biological Technology at Pasadena City College may give students who earn an A.S. degree in Biological Technology a competitive advantage in securing employment, particularly in middle skill occupations in the biotechnology industry.

4. List similar programs at other colleges in the Los Angeles and Orange County Region which may be adversely impacted. (There is space for 10 listings, if you need more, please contact laocrc@sccollege.edu)

College	Program	Who You Contacted	Outcome of Contact
Citrus College	Biotechnology	Barbara Juncosa, Ph.D.	Support
East Los Angeles College	Laboratory Science Technology (pending)	Alan Khuu, Ph.D.	Support
Fullerton College	Biological Technician	Jo Wu, Ph.D.	Support
L.A. Trade Tech	Biotechnology (Biomanufacturing)	Martin Diaz, Ph.D.	No response

5. List all courses required for program completion, including core requirements, restricted electives and prerequisites. (There is space for 20 listings, if you need more, please contact [laocrc.sccollege.edu](http://www.laocrc.org)).

(See PCAH pp. 143 and 171)

Courses	Course Number	Course Title	Units
Required Core Course (42 units)	BIOL 102A	Biological Technology - Basic Techniques	3
Required Core Course	BIOL 102B	Biological Technology - Advanced Techniques	3
Required Core Course	BIOL 102C	Biological Technology - Cell Culture Techniques	3
Required Core Course	BIOL 102D	Biological Technology - Laboratory Internship	3
Required Core Course	BIOL 010A	Cellular Biology, Genetics and Evolution	5
Required Core Course	BIOL 010B	The Diversity of Life on Earth; Structure, Function and Ecology	5
Required Core Course	BIOL 010C	Genetics	3
Required Core Course	CHEM 001B	General Chemistry and Chemical Analysis (2 nd semester)	5
Required Core Course	CHEM 008A	Organic Chemistry (1 st semester)	5
Required Core Course	PHSC 002	Scientific Method as Critical Thinking	3
Required Core Course	ENGL 001A	Reading and Composition	4
One Course (4 units)	MICR 002	Microbiology	4
	BIOL 104B	Microbiological Applications used in Biotechnology	4
One Course (4 units)	STAT 018	Statistics for Behavioral and Social Sciences	4
	STAT 050	Elementary Statistics	4
One Course (2-4 units)	BIOL 104A	Applications of Fluorescence Microscopy	2
Recommended Elective	BIOL 104C	Research Methodology	3
	BIOL 104D	Collaborative Research Experience	3
Prerequisite	MATH 131	Intermediate Algebra	3
Prerequisite	CHEM 022	Introductory Chemistry	4
Prerequisite	CHEM 001A	General Chemistry and Chemical Analysis (1 st semester)	5
		Note: BIOL 102D can be taken up to 4 times	

6. Include any other information you would like to share.