

# BIOTECHNOLOGY (BIOMANUFACTURING)



Pathway: Applied Sciences  
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Award Title	Academic Plan	Award Type	GE Units	Required Course Units	Major Elective Units	Major Units
Biotechnology	T033682C	A.S.	21*	34	-	34
Biotechnology	T033225D	C		34	-	34

At least 60 degree applicable units are required to earn an Associate degree.  
\*GE Units requirements may be fulfilled by completing any General Education Pattern; please consult with a counselor for more details.  
These programs are Financial Aid Eligible.

## PROGRAM OVERVIEW

The goal of the Biotechnology/Biomufacturing Program is to provide training and instruction in foundational science theory, biological principles, industrial equipment, processes and process variables, quality control and biomufacturing regulations; leading to career technical certificates, associate degrees, and gainful employment.

The Biotechnology Degree and Certificate are designed to prepare students for employment in the Biotechnology, Pharmaceutical and Medical Device Industry/Manufacturing industry.

Career opportunities for students completing this program of study include, but are not limited to:

- Inspectors, Testers, Sorters, Samplers, and Weighers
- Life and Physical Science Technician
- Biologicals, Food, and Beverage Manufacturing/Processing Technician
- Quality and Regulatory Inspectors
- Agricultural and Food Science Technicians
- Food Processing Workers

By fulfilling the program requirements, students will have the necessary knowledge and skills for manufacturing and regulating quality of manufactured products; monitoring process and analytical parameters of manufactured products; proper use of safety equipment; understanding hazardous conditions; proper use of processing equipment; proper use of analytical instrumentation; proper collection of measurement, and an understanding of metrology principles (i.e., calibration and standardization); understanding the significance of microbiological control, and how it is achieved with facility design and best practices; and understanding regulation and Good Manufacturing Practices.

## USEFUL LATTTC LINKS:

College Catalog, Class Schedule & more: <http://www.lattc.edu/academics>  
Financial Aid Office: <http://www.lattc.edu/services/financial-aid>  
Counseling Services & Support: <http://www.lattc.edu/services/support>  
Applied Sciences Pathway: <http://www.lattc.edu/academics/pathways/ap>

## PROGRAM LEARNING OUTCOMES (PLOs)

Upon completion of the **Degree/Certificate** program, students are able to:

- Apply basic biological principles to biomufacturing.
- Explain and apply the processes in the biomufacturing industry.
- Recognize and perform industrial regulatory processes.

## BIOTECHNOLOGY

### Associate in Science Degree

Major Units: 34

Requirements for the Associate in Science degree in Biotechnology may be met by completing 34 units of Required Courses with a "C" or better along with General Education units. Information on the General Education unit requirements may be found in the catalog under Graduation Requirements.

### REQUIRED COURSES

SEMESTER I		UNITS
BIOLOGY 003	Introduction to Biology	4
- or BIOLOGY 005 Introduction to Human Biology (4)		
CHEM 051	Fundamentals of Chemistry I	5
PRPLTEK 104	Introduction to Applied Sciences	4
SEMESTER II		UNITS
MICRO 020	General Microbiology	4
PRPLTEK 102	Process Measurement and Control Fundamentals	3
PRPLTEK 214	Industry Trends: Employment and Regulations	3
SEMESTER III		UNITS
BIOTECH 010	Introduction to Biomufacturing I	4
PRPLTEK 103	Process Plant Equipment	3
SEMESTER IV		UNITS
BIOTECH 012	Introduction to Biomufacturing II	4

## BIOTECHNOLOGY

### Certificate of Achievement

Major Units: 34

A Certificate of Achievement in Biotechnology may be earned by completing 34 units of Required Courses listed under the Associate degree in Biotechnology with a grade of "C" or better in each course.

To register: <http://www.lattc.edu/student-guides/new-student-guide>

For additional information consult a LATTTC college counselor.