

# Biotechnology

The expanding field of biotechnology devotes itself to improving human health and well-being through the research, development, testing, manufacturing, and marketing of products related to the biomedical, food and beverage, cosmetics, and agricultural industries. The Biotechnology program provides both the theoretical background and practical experience necessary to gain employment in the biotechnology industry. Career paths include research, development, quality control and assurance, manufacturing, analytical testing, and lab technician work.

## Bachelor's Degree Program

The bachelor's degree program in biomanufacturing builds upon the associate degree program in biomanufacturing, allowing students who complete the associate degree or equivalent coursework from other colleges to enter as juniors and earn a baccalaureate. Information about the program, including eligibility requirements, the application process, and upper-division tuition, is available under Bachelor's Degree. For inquiries about the bachelor's program, please contact Dr. Dominique Ingato at [dingato@miracosta.edu](mailto:dingato@miracosta.edu).

**Academic and Career Pathway:** Math and Sciences

## Contact Information

**Chair:** Barbara Juncosa

**Dean:** Michael Fino

<https://www.miracosta.edu/academics/degree-and-certificate-programs/math-and-sciences/biotechnology/index.html>

**Department:** Biotechnology

**Office:** Building OC3600,

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## Full-Time Faculty

Dominique Ingato

Barbara Juncosa

Wally Perez Medina

## Bachelor's Degree

### Bachelor of Science Degree Biomanufacturing

The biomanufacturing bachelor's degree program develops the skills, abilities, and knowledge students need to work in the unique environment of biological production. It emphasizes the applied, quantitative analysis of biomanufacturing process design and performance to prepare students for employment in technical or quality positions in the manufacturing sector of the biotechnology industry, which includes biotherapeutics, diagnostics, supplies and services, and industrial products.

The biomanufacturing bachelor's degree program requires the completion of 120 semester units, including 45 units of upper-division coursework with a minimum of 12 units in residence at MiraCosta College.

The program builds upon the college's associate degree program in biomanufacturing, allowing students who complete the associate degree or equivalent coursework

from other colleges to enter as juniors and earn a bachelor's degree. Students earning the college's associate degree in biomanufacturing must complete either the CSU-GE (Plan B) or the IGETC (Plan C) general education pattern to graduate with a bachelor's degree in biomanufacturing.

### Lower-Division Major Preparation

- ▶ Overall GPA of 2.0 for all coursework
- ▶ Completion of the following lower-division course requirements with no grade less than "C" or "P":
  - ▶ BTEC 108/BTEC 108H or General biology (BIO 105 or equivalent)
  - ▶ CHEM 150/CHEM 150H
  - ▶ CHEM 151/CHEM 151H
  - ▶ BTEC 107
  - ▶ BTEC 110/BTEC 110H
  - ▶ BTEC 120
  - ▶ BTEC 210
  - ▶ BTEC 211
  - ▶ BTEC 221
  - ▶ BTEC 222
  - ▶ ENGL 100/ENGL 100H
  - ▶ Statistics (BTEC 180/BTEC 180H or equivalent)

### Application for Admission

Students complete the standard online application to the college as well as the Application for the Bachelor of Science in Biomanufacturing, which is available on the Biomanufacturing Bachelor's Degree Program webpage ([see miracosta.edu/bachelors](http://www.miracosta.edu/bachelors)). Applications for the fall 2023 cohort become available on August 1st and are due in mid-November for priority consideration and are accepted on a rolling basis after this priority deadline until the cohort is full.

Certain lower-division courses must be completed or in progress in order to submit an application for admission to the program. Please see the Biomanufacturing Bachelor's Degree Program webpage for details.

### Admission/Selection Criteria

Qualified applicants are selected for admission based on a comprehensive review process that gives additional weight to the following:

- ▶ Percentage of lower-division major preparation completed at the time of applying.
- ▶ Completion of an associate degree in biomanufacturing, research and development, or equivalent.
- ▶ Completion before entry date of BTEC 221 and BTEC 222 (or equivalent).
- ▶ Completion of additional 200-level biotechnology, biology, or chemistry courses or 100-level physics courses not listed in the program requirements.
- ▶ Completion (or partial completion) of CSU-GE (Plan B) or IGETC (Plan C).
- ▶ GPA in lower-division major preparation courses.
- ▶ Employment in the biotechnology/biomedical industry, including internships.
- ▶ Relevant life experiences or special circumstances, such as disabilities, low family income, first generation college