

BIOTECHNOLOGY - CERTIFICATE



BIOT

CCRI's Biotechnology program includes courses in biotechnology, microbiology, chemical technology and instrumentation. Coursework is designed to mirror many of the concepts and techniques used in biotechnology and related industries. In addition to coursework, students will have access to industry professionals through classroom speakers, manufacturing facility tours, industry seminars and professional networking. The Biotechnology program offers hands-on, competency-based instruction designed for entry-level students or retraining for individuals with previous workplace and/or educational experience. The 18-credit certificate program focuses on the techniques and skills leading companies look for in the area of biomanufacturing. Biotechnology certificate credits can be used toward the completion of the Science track leading to an Associate in Science (A.S.) degree. This allows students the option of working in the biotechnology field while completing their degree. Alternatively, students can complete the Associate in Science degree and the Biotechnology certificate program concurrently.

For more information, see the "Science" track entry (<https://catalog.ccri.edu/programs-study/science/assoc/science-as/>) in the catalog or contact Program Coordinator Scott Warila at 401-825-2136 or srwarila@ccri.edu. Additional information is available through the Biology Department on the CCRI website. (<https://www.ccri.edu/biology/>)

Note: Students are required to receive a grade of C or better in the courses required for the Biotechnology certificate or obtain special permission from the program coordinator. Many courses require prerequisites, corequisites and/or testing. See course descriptions for details. (<https://catalog.ccri.edu/course-descriptions/>)

Program Learning Outcomes

Upon completion of this program, a student will be able to:

1. Demonstrate an understanding of the diversity of application and issues relating to the field of modern biotechnology.
2. Demonstrate an understanding of scientific, technical, and regulatory processes involved in producing biopharmaceutical products.
3. Use web-based resources to obtain information regarding several aspects of biotechnology, including scientific career, industrial, ethical, and regulatory issues.
4. Demonstrate mathematical and laboratory proficiency in the area of media and solution preparation.
5. Use computers to document, record, and analyze laboratory data.
6. Demonstrate an understanding of the significance and practical aspects of Good Manufacturing Practices, including the ability to follow strict documentation guidelines.
7. Perform laboratory procedures using proper aseptic technique.
8. Perform laboratory procedures that are commonly used in the fields of Cell Biology, Microbiology, and Chemical technology.
9. Demonstrate skill in the fundamentals of process control technology.

10. Demonstrate an understanding of the significance and purpose of process control in the biomanufacturing industry.

Certificate Requirements

Code	Title	Hours
BIOL 1000	Cell Biology for Technology ^{MSCI; Scientific Reasoning; Social and Professional Responsibilities}	4
BIOL 1300	Orientation to Biotechnology	1
BIOL 1310	Introduction to Biotechnology Laboratory Skills	3
BIOL 2480	General Microbiology	4
CHMT 1121	Chemistry for Biotechnology	3
INST 1010	Introduction to Instrumentation Technology	3
Subtotal		18
Total Hours		18

Recommended Course Sequence

Course	Title	Hours
Semester 1		
BIOL 1000	Cell Biology for Technology ¹	4
INST 1010	Introduction to Instrumentation Technology	3
Hours		7
Semester 2		
CHMT 1121	Chemistry for Biotechnology ²	3
BIOL 1310	Introduction to Biotechnology Laboratory Skills	3
Hours		6
Summer Session		
BIOL 1300	Orientation to Biotechnology ¹	1
BIOL 2480	General Microbiology	4
Hours		5
Total Hours		18

¹ Also offered in spring

² Offered some summers