



Program Contact:

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Biotechnology

The biotechnology industry is growing and evolving locally, regionally, and globally. The biotechnology program at FCC connects the biopharmaceutical manufacturing industry with a capable, prepared workforce.

The Program

Rapid expansion and growth of the local biotechnology industry is fueling the demand for qualified process operators, providing employment opportunities in a field that offers employer-supported career development and continued education possibilities.

Students learn industry-specific skills required in biotechnology, such as how to:

- Implement cell culture, fermentation, separation, purification, and sterilization techniques in a laboratory setting
- Understand and apply basic laboratory skills, documentation practices, and aseptic techniques to monitor production, maintain workplace safety, and prevent contamination of bio-products
- Perform upstream bioprocessing techniques to culture cells and microorganisms to create a bulk bio-product for research and industry
- Perform downstream bioprocessing techniques to separate and refine bulk bio-products into a suitable form for end use in industry
- Manufacture assays for diagnostic testing for research

Biotechnology A.A.S. Degree

The Biotechnology A.A.S. degree provides students with a strong basic science foundation and enables them to develop a sound understanding of the major technologies employed in the industry. Students will develop collaborative and disciplined work ethics while consistently practicing problem-solving skills. Upon successful completion of the program, students will possess the necessary skills to qualify for employment in a variety of biotechnology industries or transfer to a four-year institution.

This program prepares students for employment in the local biotechnology industry, and emphasizes science, communication, critical thinking, manufacturing technologies, and laboratory environmental health and safety. Students work in small collaborative groups to apply current manufacturing techniques while using problem-solving and critical thinking skills.

At the completion of the program, students will be able to:

- Articulate central themes of the discipline
- Apply and demonstrate entry-level biotechnology skills and techniques
- Demonstrate discipline-specific scientific inquiry
- Communicate discipline-specific knowledge
- Integrate discipline-specific technology
- Demonstrate appropriate quantitative skills
- Analyze the role of biotechnology in society

For more information on Biotechnology:

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Biotechnology Certificate

The Biotechnology Certificate prepares students to work as process operators in biological products manufacturing facilities. Students will combine basic science and communication skills, manufacturing technologies, and good manufacturing practices in the course of study.

Students will develop a strong basic science foundation with a sound understanding of the major technologies employed in the industry. They will also develop collaborative and disciplined work ethics while consistently practicing problem-solving skills. Upon successful completion of the program, students will possess the necessary skills to qualify for employment in a variety of biotechnology industries.

Biotechnology Letter of Recognition

The Biotechnology Letter of Recognition provides an introductory level of training to prepare individuals to work as process operators in biological products manufacturing. Students will be introduced to concepts related to bioprocessing technology, and will learn basic laboratory skills, workplace safety, and general regulations that apply to the bioprocessing industry.

Internship Program

Internships help students integrate what is taught in the classroom with what is required in the workplace. Students take internships to develop knowledge and skills valued by employers. Students in the biotechnology program at FCC are eligible to receive credit for internships.

Financial Assistance

FCC provides a tuition payment plan for students who wish to spread payment over several months. Scholarship and loan assistance is available for eligible students. For complete scholarship information, contact Financial Aid at 301.846.2620.

Growth Potential & Estimated Salaries

The median annual wage for biological technicians was \$44,500 in 2018. Employment of biological technicians is projected to grow 7 percent from 2018 to 2028. Continued growth in biotechnology and medical research is expected to increase demand for these workers.

Source: Bureau of Labor Statistics, U.S. Department of Labor, Occupational Outlook Handbook, Biological Technicians

Transfer Note

Students can transfer the equivalent of 60 credits to any four-year institution in Maryland. To find more information about how credits will transfer from FCC to a state four-year institution visit artsys.usmd.edu or contact Counseling & Advising at 301.846.2471.

FCC has an articulation agreement with the University of Maryland Global Campus, allowing students a seamless transfer experience. Students who plan to transfer should speak with an advisor or program manager from their chosen transfer institution before selecting elective courses.

View required course listings:
frederick.edu/biotechnology

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Frederick Community College makes every effort to accommodate individuals with disabilities for College-sponsored events and programs. If you have accommodation needs or questions, please call 301.846.2408. To request a sign language interpreter, please visit <http://fcc-interpreting.genbook.com>. If you have interpreting related questions, please email Interpreting@frederick.edu. Sign language interpreters will not be automatically provided for College-sponsored events without a request for services. To guarantee accommodations, requests must be made at least five workdays in advance of a scheduled event. If your request pertains to accessible transportation for a College-sponsored trip, please submit your request at least 21 calendar days in advance. Requests made less than 21 calendar days in advance may not be able to be guaranteed.