

BIOTECHNOLOGY AAS

Total Credits: 60

Catalog Edition: 2024-2025

Program Description

(G): 334

The biotechnology program is designed to instruct and train students in the field of biotechnology. Entry-level workers in the field of biotechnology are involved in laboratory work such as DNA isolation or sequencing, cell culture, toxicology or vaccine sterility testing, antibody production and isolation, and the testing and development of diagnostic and therapeutic agents. Training is designed to prepare students for both academic achievement and successful employment in the biotechnology industry. The program offers both a degree and two certificates to meet the differing needs of students.

On completion of the biotechnology AAS, the student may transfer to another institution and earn a baccalaureate degree in a biological science or may elect to enter the workforce. Course selection within the curriculum depends on which option the student selects.

The emphasis of the program is on applied laboratory skills relevant to the biotechnology industry. A solid foundation is obtained through introductory coursework in biotechnology, biology, chemistry, and mathematics. These background courses prepare students for more rigorous upper-level applied coursework in biotechnology, biology, and chemistry taken during the second year. High school biology, chemistry, and math (algebra II) are strongly recommended.

Because of the variation in requirements of four-year institutions, students are urged to consult an advisor about specific course selections.

Program Outcomes

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

- Independently complete basic laboratory tasks common to biotechnology such as documentation, pipetting, buffer preparation, dilutions, and gel electrophoresis.

- Define and explain the basic principles, concepts, and techniques of biotechnology.
- Identify, communicate, and solve common problems in the biotechnology field.

Program Advisors

Germantown

- Dr. Lori Kelman, 240-567-6929,
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For more information, please visit <https://www.montgomerycollege.edu/academics/programs/biotechnology/biotechnology-aas-degree.html> or GT STEP Advising <https://www.montgomerycollege.edu/gtstep>

To view the Advising Worksheet, please visit <https://www.montgomerycollege.edu/documents/counseling-and-advising/advising-worksheets/current-catalog/334.pdf>

2024-2025

Program Advising Guide

An Academic Reference Tool for Students

BIOTECHNOLOGY AAS

Suggested Course Sequence

A suggested course sequence for full-time students follows. All students should review this advising guide and consult an advisor.

First Semester

ENGL 101 - Introduction to College Writing *3 semester hours* *

Mathematics Foundation *3 semester hours (MATF)*

BIOT 110 - Introduction to Biotechnology *3 semester hours*

BIOT 120 - Introduction to Cell Culture *2 semester hours*

BIOT 121 - Aseptic Technique and Cell Culture Skills *1 semester hour*

CHEM 131 - Principles of Chemistry I *4 semester hours (GEEL)*

Third Semester

Arts or Humanities Distribution *3 semester hours (ARTD or HUMD)*

BIOL 222 - Principles of Genetics *4 semester hours*

BIOT 231 - Immunological Methods *1 semester hour*

BIOT 230 - Applied Immunology *3 semester hours*

CHEM 150 - Essentials of Organic and Biochemistry *4 semester hours ‡*

Total Credit Hours: 60

* ENGL 101/ENGL 101A, if needed for ENGL 102/ENGL 103, or elective.

‡ CHEM 203 (5 semester hours) may be taken instead of CHEM 150.

† Program electives: BIOT 250, BIOT 251, BIOT 260, BIOT 261, CMAP 120, CHEM 132, CHEM 204, PHYS 203, PHYS 233, SCIR 297, MATH Elective, BIOL Elective, COMM 108 or COMM 112, HUMD, BSSD, or ARTD.

Second Semester

English Foundation *3 semester hours (ENGF)*

BIOL 150 - Principles of Biology I *4 semester hours (NSLD)*

BIOT 200 - Protein Biotechnology *3 semester hours*

BIOT 201 - Protein Biotechnology Skills *1 semester hour*

BIOL 210 - Microbiology *4 semester hours*

Fourth Semester

Behavioral and Social Sciences Distribution *3 semester hours (BSSD)*

BIOT 240 - Principles of Nucleic Acid Methods *3 semester hours*

BIOT 241 - Nucleic Acid Methods *1 semester hour*

Program Electives *7 semester hours †*

Transfer Opportunities

Montgomery College has partnerships with multiple four-year institutions and the tools to help you transfer. To learn more, please visit <https://www.montgomerycollege.edu/transfer> or <http://artsys.usmd.edu>.

Get Involved at MC!

Employers and Transfer Institutions are looking for experience outside the classroom.

MC Student Clubs and Organizations: <https://www.montgomerycollege.edu/life-at-mc/student-life/>

Related Careers

Some require a Bachelor's degree.

Biological Technician, Microbiologist, Molecular and Cellular Biologist, Medical and Clinical Laboratory Technologist, Biofuels/Biodiesel Technology and Product Development Manager, Bioinformatics Technician, Clinical Data Manager & Regulatory Affairs Specialist.

Career Services

Montgomery College offers a range of services to students and alumni to support the career planning process. To learn more, please visit <https://www.montgomerycollege.edu/career>

Career Coach

A valuable online search tool that will give you the opportunity to explore hundreds of potential careers or job possibilities in Maryland and the Washington D.C. metropolitan area. Get started today on your road to a new future and give it a try. For more information, please visit <https://montgomerycollege.emsicc.com>

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