



BIOLOGY (BIOL)

Division of Mathematics and Sciences

Dean: Martin Stringer

Department Co-Chairs, Life Science: Michael Taylor, Mark Smith

Faculty: Denise Foley, Robert Houska, Anson Lui, Charleen Powers, Mark Smith, Michael Taylor

Associate in Science Biology (11856)

The associate degree in biology prepares students for transfer to a four-year institution leading to a baccalaureate degree in biology or disciplines such as microbiology, botany, zoology, and careers in teaching, medicine and health sciences.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate an understanding of the basic theories of biology.
- Demonstrate a knowledge of and an ability to apply and effectively communicate the scientific method.

Major requirements*	Units
Biology 211, Cellular and Molecular Biology	5
Biology 212, Animal Diversity and Ecology OR	5
Biology 221, Animal Diversity and Evolution Biology 214, Plant Diversity and Evolution OR	5
Biology 231, Plant Diversity and Ecology Chemistry 219/219H, General Chemistry Chemistry 229, General Chemistry and Qualitative Analysis	5 5 5
TOTAL	25

Associate in Science Biotechnology (32599)

The associate degree in biotechnology is designed for students who wish to obtain the skills required to gain employment in industries influenced by biotechnology as well as for incumbent workers seeking career opportunities. Upon completion of this program, students will be eligible to obtain employment as laboratory assistants, biomanufacturing technicians, or research and development technicians.

Learning Outcome(s)

Upon successful completion of the major requirements for this degree, students will be able to

- Demonstrate an understanding of and follow workplace safety guidelines.
- Demonstrate proficiency in following standard operating procedures (SOPs).
- Properly maintain a laboratory notebook.
- Understand and correctly operate laboratory equipment.

Major requirements*	Units
Biology 190, Introduction to Biotechnology	3
Biology 191, Biotechnology A: Basic Lab Skills	4
Biology 192, Biotechnology B: Proteins	4
Biology 193, Biotechnology C: Nucleic Acids	4
Biology 194, Quality and Regulatory Compliance in Biosciences	2
Biology 211, Cellular and Molecular Biology	5
Chemistry 209, Introductory Chemistry	4
Chemistry 219/219H, General Chemistry	5
TOTAL	31

Certificate of Achievement Biotechnology Biomanufacturing Technician (32598)

The certificate of achievement in biotechnology biomanufacturing technician is designed for students who wish to obtain the skills required to gain employment in industries influenced by biotechnology as well as for incumbent workers seeking career opportunities. Upon completion of this certificate program, students will be eligible to obtain employment as laboratory assistants or biomanufacturing technicians.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate an understanding of and follow workplace safety guidelines.
- Demonstrate proficiency in following standard operating procedures (SOPs).
- Properly maintain a laboratory notebook.
- Understand and correctly operate laboratory equipment.

Certificate requirements	Units
Biology 190, Introduction to Biotechnology	3
Biology 191, Biotechnology A: Basic Lab Skills	4
Biology 192, Biotechnology B: Proteins	4
Biology 211, Cellular and Molecular Biology	5
Chemistry 219/219H, General Chemistry	5
TOTAL	21

Certificate of Achievement Biotechnology Laboratory Technician: Food Safety (32648)

The certificate of achievement in biotechnology laboratory technician of food safety is designed for students who wish to obtain the skills required to gain employment in industries influenced by biotechnology within the food industry as well as for incumbent workers seeking career opportunities. Upon completion of this certificate program, students will be eligible to obtain employment as laboratory assistants, biomanufacturing technicians, or research and development technicians.

Learning Outcome(s)

Upon successful completion of the requirements for this certificate, students will be able to

- Demonstrate an understanding of and follow workplace safety guidelines.
- Demonstrate proficiency in following standard operating procedures (SOPs).
- Properly maintain a laboratory notebook.
- Understand and correctly operate laboratory equipment.

Certificate requirements	Units
Biology 190, Introduction to Biotechnology	3
Biology 191, Biotechnology A: Basic Lab Skills	4
Biology 192, Biotechnology B: Proteins	4
Biology 193, Biotechnology C: Nucleic Acids	4
Biology 194, Quality and Regulatory Compliance in Biosciences	2
Biology 196, Food Safety and Microbiology	2
Biology 211, Cellular and Molecular Biology	5
Chemistry 219/219H, General Chemistry	5

Select a minimum of five (5) units from the following:	5-9
Biology 139, Health Microbiology (4) OR	
Biology 229, General Microbiology (5)	
Biology 197, Science, Technology, Engineering & Mathematics (STEM) Internship (1-4)	
TOTAL	34-38

*Major requirements for the associate degrees are in addition to the General Education requirements found on page 37.