

What is the Biology Program?

The Biology program at HCC provides a broad general education in biology, chemistry, math, plus study options in a variety of more specific sciences such as physics, geology, anatomy and physiology, microbiology, environmental science, and biotechnology. Students who graduate from this program should be prepared to successfully continue their education at four-year colleges and universities. Biology majors find jobs in the areas of health sciences and services, biotechnology and biomanufacturing, environmental protection, remediation and management.

What can I do with my biology A.S. degree?

Many entry-level positions in biology require a bachelor's degree, so most biology students will prepare for a future career by continuing their education beyond the associate's level degree offered at HCC. A degree in biology is a prerequisite for employment in the following areas:

- Medicine/pharmacy/physician assistant
- Dentistry/orthodontics
- Agriculture/animal and plant sciences
- Environmental and natural resource management
- Biotechnology/biomanufacturing
- Forensics
- Lab technician/discovery research
- Bioethics/public policy/public health
- Science education

More information on careers in biology is available through the American Institute for Biological Sciences (<http://www.aibs.org/careers/>) and (<http://www.learnhowtobecome.org/science-technology-careers/biology/>)

What is the employment outlook?

There will always be a need for educated individuals with a strong understanding of biology. Employment opportunities in biology are expected to keep pace with, or surpass, the national average for job growth. Job growth is expected in a number of areas, particularly biotechnology and molecular biology. Op-



portunities vary depending on the status of local and national economies. For current job outlook information, check the Occupational Outlook Handbook (www.bls.gov/ooh/).

The National Association of Colleges and Employers 2020 Salary Survey reported a median salary of \$40,000 for life science technicians with an Associate's degree (Agriculture/Food, Chemical/Environmental areas). Graduates with a bachelor's degree have higher median salaries. Examples include \$46,000 as a biological technician \$60,000 for a forensic science; \$63,000 for wildlife or conservation biologists, while microbiologists can earn \$84,000 or more per year. Salaries may be lower or much higher (\$100,000+ for researchers, physicians, etc.) depending on the specific degree obtained.

Why Should I Study Biology at HCC

The Biology Program introduces students to the many aspects of modern biology, ranging from biotechnology and molecular biology to ecosystem function. The STEM Building provides state-of-the-art learning and laboratory space, equipped with relevant modern technology and ample computer access. HCC students enjoy small class sizes compared to

PROGRAM OPTIONS

 A.S., Biology Concentration

CAREER OUTLOOK

MEDIAN SALARY

\$45K

for Agricultural
and Food Science
Technicians

EMPLOYMENT



27K jobs in U.S.
8% growth in the next
ten years

About 3,700 openings for agricultural and food science technicians are projected each year, on average, over the decade. Many of those openings are expected to result from the need to replace workers who transfer to different occupations or exit the labor force, such as to retire.

(source: www.bls.gov/ooh)

most four-year colleges and universities. Enrollment in biology in biology labs is capped to ensure that students will have opportunities to interact with faculty. HCC's biology faculty members are highly qualified, holding doctoral degrees in biology and additional educator training.

Hands-on learning and the application of the scientific method for discovery and hands-on learning is emphasized in all lab courses and activities. The program requirements stress the integration of math and communication skills to promote student learning. The integration of skills such as critical thinking, application of mathematics for data analysis and problem solving, reading, writing, and scientific literacy throughout the program requirements, ensure that HCC graduates will perform well in the job market or at a four-year school.

The Biology Program coordinates with many community institutions and industries to encourage students to gain knowledge about future career choices through an internship experience. Students in the HCC Biology Program have been able to obtain internships at many prestigious organizations, including but not limited to, the National Institutes

of Health, the Appalachian Fruit Research Station, the Cool and Cold Water Fish Aquaculture Research Station, Lonza Biologicals, MedImmune Corporation, and the National Park Service.

What are the program options?

All biology majors who successfully complete the program will earn an A.S. degree with a concentration in biology. Students may customize their course loads to emphasize their particular areas of interest by choosing appropriate elective courses. For example, a student wishing to work as a natural resource manager would enroll in the environmental science elective, while one wishing to be a physician might opt for an anatomy and physiology elective.

Why do HCC students excel at transfer institutions?

The Biology Program at HCC provides a strong foundation in general biology with opportunities to take specialized electives that align with personal interests and career goals. Students in the program work with retention specialists and assigned program faculty advisor. The faculty and staff are dedicated to student success and routinely provide guidance and academic counseling and support services. Faculty focus their efforts on improving student learning and study skills in order to assist with mastering course content. Students who complete a two-year degree at a community college are often more successful in completing a four-year degree than those who do not attend a community college.

HCC has transfer articulation agreements with several Maryland and out-of-state institutions in the region. While most credits in the program can transfer, students should verify transferability with the institutions they are seeking to attend.

A.S. Degree

Biology

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General Education Requirements 33 Credits

Arts and Humanities

Select two courses from the approved General Education course list 6

Behavioral/Social Sciences

Select two courses from the approved General Education course list 6

Biological/Physical Science

Biology majors are required to take the BIO 113 and BIO 114 sequence.

BIO 113 Principles of Biology I..... 4
 BIO 114 Principles of Biology II..... 4

Diversity

Select one course from the approved General Education course list 3

English

ENG 101 English Composition..... 3
 *Minimum grade of a "C" or better is required.

Select another English class from the approved list 3

Mathematics

MAT 161 Precalculus II..... 4

Program Requirements 20 credits

BIO 205	Microbiology.....	(4)
CHM 103	General Chemistry I.....	(4)
AND		
CHM 104	General Chemistry II.....	(4)
AND Either		
CHM 203	Organic Chemistry I.....	(4)
AND		
CHM 204	Organic Chemistry II.....	(4)*
OR		
PHY 201	General Physics I.....	(4)
AND		
PHY 202	General Physics II.....	(4)

*Both Sequences of CHM 203/204 and PHY 201/202 may be required depending on the transfer institution. Please check with an advisor on specific institution requirements

Recommended Electives 7 credits

Electives should be selected in consultation with a transfer advisor and/or the transfer institution. Some recommended courses are listed below:

BIO	Select any 200 level Biology course.....	3-4
BTC	Select any Biotechnology course.....	3-4
CHM 101	Introductory College Chemistry.....	4
CHM 203	Organic Chemistry I.....	4
CHM 204	Organic Chemistry II.....	4
EGR 103	Introduction to Engineering Science.....	3
ENG 102	Advanced Composition.....	3
ENV 201	Fundamentals of Environmental Science I.....	4
ENV 202	Fundamentals of Environmental Science II.....	4
MAT 109	Introduction to Statistics.....	3
MAT 160	Precalculus I.....	3
MAT 203	Calculus I.....	4
PHY 201	General Physics I.....	4
PHY 202	General Physics II.....	4

Degree Requirement..... 60

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