Biology

What is the Biology Program?

Students who complete the Biology Program at Hagerstown Community College will graduate with an associate of science (A.S) degree. This program ensures that graduates will be able to continue their studies as biology majors in a bachelor's degree program. Core courses deliver a strong foundation in biology while offering flexibility for future career choices.

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 level. A degree in biology is a prerequisite for employment in the following areas:

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

Additional information regarding careers in biology is available through the American Institute for Biological Sciences (www.aibs.org/careers/)

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. Employment growth is expected in a number of areas, particularly biotechnology and molecular biology. Opportunities 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 2016 Salary Survey reported a median starting salary of $59,600 for graduates with a bachelor's degree in the biological/life sciences. Salaries may be lower ($41,650 for a biological technician) or much higher ($80,000+ for doctors or researchers) depending on the level biology 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 most four-year colleges and universities. 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. In addition, all biology majors will conduct an extended field study project as part of the program requirements. 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, Transgenomic Corporation, 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. HCC faculty members are dedicated to student success and routinely provide guidance and academic counseling. 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

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.

General Education Requirements 32-33 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
Take the two laboratory courses listed below. 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
Select one course from the approved General Education course list 3-4

Program Requirements 20 credits

BIO	201	Cell Biology	4
		OR	
BIO	205	Microbiology	(4)
CHM	103	General Chemistry I	4
CHM	104	General Chemistry II	4
CHM	203	Organic Chemistry I	4
CHM	204	Organic Chemistry II	4
		OR	
PHY	201	General Physics I	(4)
PHY	202	General Physics II	(4)

**Both sequences may be required depending on the transfer institution. See a transfer advisor.*

Free Electives 3-8 credits
Electives should be selected in consultation with a transfer advisor and/or the transfer institution. Some recommended courses are listed below:

BIO	111	Contemporary Issues in Biology	3
BIO	117	Environmental Science	4
BIO	201	Cell Biology	4
BIO	203	Human Anatomy and Physiology I	4
BIO	204	Human Anatomy and Physiology II	4
BIO	205	Microbiology	4
BIO	206	Nutrition for Health Sciences	3
BIO	269	Internship I	3
BIO	270	Internship II	3
BTC	101	Introduction to Biotechnology	3
BTC	102	Introduction to Applied Biotechnology Research	3
BTC	103	Forensic Science	4
BTC	201	Discovery Research	4
BTC	202	Biomanufacturing	4
BTC	269	Biotechnology Internship I	3
BTC	270	Biotechnology Internship II	3
CHM	101	Introductory College Chemistry	4
CHM	203	Organic Chemistry I	4
CHM	204	Organic Chemistry II	4
EDU	101	Introduction to Education	3
EGR - Select any Engineering Science course			3-4
ENV	201	Fundamentals of Environmental Science I	4
ENV	202	Fundamentals of Environmental Science II	4
MAT	109	Introduction to Statistics	3
MAT	102	Trigonometry	3
MAT	161	Precalculus	4
MAT	203	Calculus I	4
PHY	201	General Physics I	4
PHY	202	General Physics II	4
STU	102	Career Planning	1

Degree Requirement.....60

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