

# Chemistry



## What is the Chemistry Program?

Chemistry deals with the properties and structure of matter, therefore it is essentially the foundation for all other science disciplines. The Chemistry Program at HCC provides a broad general education and strong foundation in chemistry, mathematics and physics, while still offering the flexibility for future careers in chemistry. HCC's chemistry program ensures that graduates will be able to continue their studies, as chemistry majors, in a bachelor's degree program.

## What can I do with my degree?

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

- Medicine/Public Health/Pharmacy/Dentistry
- Dentistry/Orthodontics
- Agriculture/Animal & Plant Sciences
- Environmental & Natural Resources Management
- Biotechnology/Biomanufacturing/Pharmaceuticals
- Forensics
- Lab Technician/Discovery Research
- Engineering
- Science Education

## Why should I study chemistry at HCC

The Chemistry Program introduces students to the many aspects of modern chemistry, ranging from basic inorganic, to organic, and thermodynamics. The courses taught at HCC introduce chemistry for a broad range of future careers from general applications, education, health science, and STEM majors. HCC's chemistry faculty are highly qualified, and hold advanced degrees in physical and organic chemistry.

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. Hands-on learning and the application of the Scientific Method for discovery is emphasized in all lab courses and activities. Enrollment in laboratory courses is capped to ensure that students will have opportunities to interact with faculty.

Chemistry majors have the opportunity to do potential research-based projects in their courses or pursue external internships with many area institutions and industries to encourage students to gain knowledge about future career choices. Acquired skills ensure that HCC graduates will perform well in the job market, or at four-year institutions of higher learning. Students in the HCC Chemistry Program have successfully transferred to local area schools like University of Maryland, College Park, University of Maryland Baltimore County, Shepherd University, Frostburg University, Towson University, and Juniata College.

## What are the program options?

All chemistry majors who successfully complete the program will earn an A.S. degree with a concentration in chemistry. Students may customize their course loads to emphasize their particular areas of interest, by choosing appropriate elective courses. For example,

## PROGRAM OPTIONS

-  A.S. Degree, Chemistry Concentration

## CAREER OUTLOOK

### MEDIAN SALARY

**\$80K**

for Chemists

### EMPLOYMENT



6% growth in the next ten years

(source: [www.bls.gov/ooh](http://www.bls.gov/ooh))

a student interested in the following fields would enroll in the below elective courses:

*Biochemistry/pharmaceutical research*

– biology and/or anatomy and physiology electives

*Chemical engineering*

– physics, mathematics, and engineering electives

*Toxicology or environmental protection*

– environmental science electives

## Why do HCC students excel at transfer institutions?

The Chemistry Program at HCC provides a strong foundation in general chemistry with opportunities to take specialized electives that align with personal interests and career goals. Faculty members are dedicated to student success and routinely provide guidance and academic counselling. Faculty focus their efforts on improving student's learning and study skills to assist students in 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. For more information, visit [www.hagerstowncc.edu/transfer](http://www.hagerstowncc.edu/transfer).

### A.S. Degree

## Arts and Sciences, Chemistry Concentration

The chemistry concentration is for students planning to transfer to a four-year degree program with a major in chemistry or related fields. The program provides all the basic science, mathematics, and general education courses that are required during the first two years of most four-year chemistry programs. Chemistry is also important in other disciplines such as communications and computers, biotechnology, environmental science, energy resources, molecular biology, medicine, and forensics. Students should work with an academic transfer advisor when selecting courses and be aware that the program requirements are rigorous.

### General Education Requirements 33 credits

#### Arts/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

CHM 103 General Chemistry I..... 4  
CHM 104 General Chemistry II..... 4

#### Diversity

Select one course from the approved General Education course list..... 3

### English

ENG 101 English Composition ..... 3  
(ELL 101 English Composition for English Language Learners is an approved substitution for ENG 101)  
*\*Minimum grade of "C" or better is required*  
Select another course from the approved General Education course list..... 3

### Mathematics

MAT 203 Calculus I..... 4

### Program Requirements..... 16-18 credits

CHM 203 Organic Chemistry I..... 4  
CHM 204 Organic Chemistry II..... 4

One Physics course sequence is required. Students should consult with a transfer advisor.

PHY 201 General Physics I..... 4  
PHY 202 General Physics II..... 4

### OR

PHY 203 Principles of Physics I ..... 5  
PHY 204 Principles of Physics II ..... 5

### Free Electives 9-11 credits

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

BIO 113 Principles of Biology I..... 4  
BIO 114 Principles of Biology II..... 4  
CHM 101 Introductory College Chemistry..... 4  
CHM 269 Internship I..... 1-3  
CHM 270 Internship II..... 1-3  
CSC 130 Intro to scripting Fundamentals  
w/ Python..... 3  
CSC 132 Introduction to C and C++  
Programming..... 3  
CSC 134 Introduction to JAVA Programming.. 3  
CSC 232 Advanced C++ Programming..... 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 160 Precalculus..... 4  
MAT 161 Precalculus II..... 4  
MAT 204 Calculus II..... 4  
MAT 205 Calculus III..... 4  
MAT 206 Differential Equations..... 4  
PHS 108 Introductory Physical Geology..... 4

### Degree Requirement..... 60

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