



- Forensics
- Lab Technician/Discovery Research
- Engineering
- Science Education

What is the employment outlook?

Overall employment of chemists and materials scientists is projected to grow seven percent from 2016 to 2026. Employment of chemists will continue to grow as the need to monitor the quality of products and processes increases. In pharmaceutical and medicine manufacturing, chemists will be increasingly needed to develop nanotechnology for medicinal uses. Additionally, within the chemical manufacturing field, employers will call upon chemists to use knowledge of green chemistry to improve environmental safety in the workplace and community. (Source: www.bls.gov/ooh)

What are the average earnings?

Depending on the level of chemistry degree and specific area of concentration obtained, salaries for chemist and materials scientist vary. According to the Occupational Outlook Handbook, the median annual wage for chemists was \$74,740 in May 2017. The highest 10 percent earned more than \$130,560.

For more information about careers in chemistry, visit the American Chemical Society at www.acs.org/content/acs/en/careers/college-to-career/chemistry-careers.html.

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; 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, 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-

What is the Chemistry Program?

Students who complete the Chemistry Program at Hagerstown Community College will graduate with an associate of science degree. The Chemistry Program at HCC ensures that graduates will be able to continue their studies, as chemistry majors, in a bachelor's degree program. The core courses deliver a strong foundation in chemistry, physics, and mathematics, while still offering the flexibility for future career choices. Chemistry deals with the properties and structure of matter, therefore it is essentially the foundation for all other science disciplines.

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
- Dentistry/Orthodontics
- Agriculture/Animal & Plant Sciences
- Environmental & Natural Resources Management
- Biotechnology/Biomanufacturing/Pharmaceuticals

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.

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 Requirements37 credits

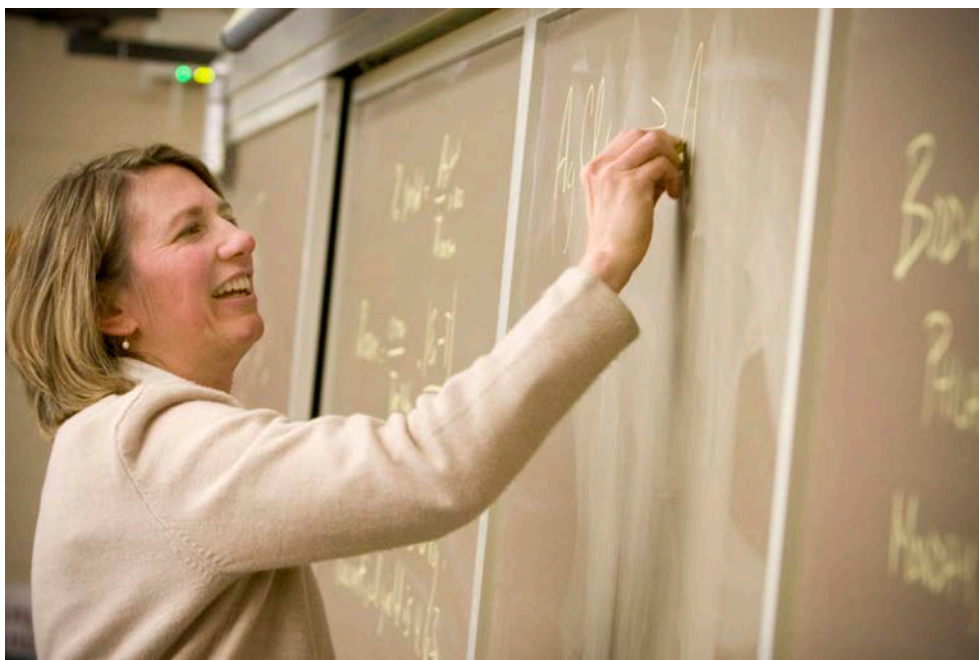
CHM 203 Organic Chemistry I..... 4
CHM 204 Organic Chemistry II..... 4

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

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 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 101	College Algebra.....	3
MAT 102	Trigonometry.....	3
MAT 109	Introduction to Statistics.....	3
MAT 161	Precalculus.....	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

9-11 credits

Contact Information:

Laurie Montgomery
Director, Mathematics and Science Division
240-500-2248
Immontgomery@hagerstowncc.edu

Dr. Veronica Stein
Assistant Professor
Chemistry and Physical Science
240-500-2269
vmstein@hagerstowncc.edu

Dr. Mihaela Deselnicu
Instructor
Chemistry and Physical Science
240-500-2368
mideselnicu@hagerstowncc.edu

www.hagerstowncc.edu/chemistry