Computer Science

What is computer science?

The true definition of computer science is the science of problem solving. Getting a computer to do what you want is not an easy process. Designing, constructing, programming, building the ideal computer is a huge task. Computer Science starts with the theory on how applications, programs, and protocols work. Next, you gain an understanding of the logical thought process. Lastly, you apply your expertise to scenarios that occur in the real world. Logic and creativity are a big part of this field.

Are you an individual who likes to analyze problems and come up with your own ideas? Do you think in a logical sequence? Do mathematical problems intrigue you? Do you like to be creative? Can you see the practical side to an application? Do you see areas of improvement in current software programs? If you can relate what you read to actual applications (critical thinking skills), communicate effectively, and apply time management skills, the computer science area might be just what you are searching for.

Formerly, computer science was limited to information technology. This is no longer true as all occupations work closely with computers. Computer science has a wide range of applications that include, but are not limited to, computer architecture/engineering (engineering), software systems/applications (program development), simulations for education and gaming (simulation and digital entertainment), graphics (web design), living green (alternative energy), cyber defense (cybersecurity), law enforcement (computer forensics), and consumer support (customer support services). There are also other broad areas, such as science, engineering, transportation, health care, business, art, and music that all work closely with computers and need computer scientists. It is difficult to come up with an area that does not use computer science majors. Students find they are required to have expertise not only in their field of interest, but also, knowledge in a related field. At HCC, you will not be limited to just learning about computers. You

PROGRAM OPTIONS

🎓 A.S. Degree, Computer Science

CAREER OUTLOOK

MEDIAN SALARY	EMPLOYMENT
$88K	
for computer & information technology occupations	531,200 new jobs in U.S. 11% growth in next ten years

Occupations are growing in this field due to a greater emphasis on cloud computing and continued demand for mobile computing.

(source: www.bls.gov/ooh)

will also learn how they interact with other areas of concentration.

What is the computer science transfer program?

HCC offers an associate of science (A.S.) degree in computer science. It provides the first two years of general education, mathematics, computer programming, and natural science. This serves as a sound foundation for transferring to a four-year institution to complete a baccalaureate degree in computer science as well as a minor in mathematics or another field of interest. HCC has aligned its program with Maryland four year schools to make transferring easy. This alignment allows students to transfer seamlessly from HCC to four-year colleges to complete their bachelor's degrees.

The computer science faculty and advisers at HCC have worked closely with the University System of Maryland to help with ease of transfer. It is recommended that interested students look to a four-year college or university at the same time they are considering HCC, in order to maximize their HCC experience, education, and transferability of coursework.

While Hagerstown tries to maximize the number of credits that are accepted and applied to a bachelor's degree program, each school is different and may require different courses. See an academic adviser for specific recommendations prior to registering for classes.

What are the program options?

HCC's computer science degree provides graduates with a foundation in the traditional transfer courses. However, there are many other areas that students have the opportunity to explore prior to deciding their final option in computer science: engineering, cybersecurity, networking, forensics, simulation and digital entertainment, cloud computing, or operating systems. With smaller class sizes, students can experience success in the classroom. They will acquire the fundamental skills necessary to become creative problem solvers, critical thinkers, and communication experts, in order to have productive careers by applying their knowledge professionally in the computer industry or to pursue graduate studies.

Types of jobs with a computer science degree

The following is a short list of potential careers with a computer science degree:

- Solution architect
- Program developer (Java or any programming language)
- Software engineer (C++ or any programming language)
- Network and computer systems administrator
- Analyst programmer
- Software developer (creating new programs)
- System analyst
- Information security analyst
- Computer and information systems management/administrators
- Web Developer

A.S. Degree
Computer Science

The transfer program in Computer Science is designed for students who plan to transfer to a four-year institution and major in Computer Science, Computer Engineering, or a related field. Students should identify an intended transfer institution as early as possible and complete appropriate courses.

General Education Requirements   29-30 credits

Arts/Humanities
Select two courses in different disciplines from the approved General Education course list.................... 6

Behavioral/Social Sciences
Select two courses in different disciplines from the approved General Education course list.................... 6

Biological/Physical Science
Select two courses from the approved General Education course list (one must be a laboratory course) 7-8

Diversity
Select from the approved General Education course list   3

English
A minimum grade of "C" or better is required for one course from the English category.
Select one course from the Approved General Education course list in the English category............. 3

Mathematics
MAT   203   Calculus I... 4

Program Requirements   12 credits
CSC   102   Introduction to Information Technology 3
CSC   130   Introduction to Scripting Fundamentals Using Python 3
CSC   132   Introduction to C and C++ Programming... 3
CSC   134   Introduction to JAVA Programming 3

Restricted Electives   14-15 Credits
Select one course from the following list:
CSC   109   UNIX/Linux Operating System............ 3
CSC   232   Advanced C++ Programming............. 3
SDE   201   Mobile Applications Design and Development 3
Select three courses from the following list:
MAT   160   Precalculus I 3
MAT   161   Precalculus II 4
MAT   204   Calculus II... 4
MAT   206   Differential Equations........................... 4
MAT   207   Discrete Mathematics 4
MAT   208   Linear Algebra 4

Free Electives   3-5 Credits
Electives should be selected in consultation with a transfer advisor and the transfer institution.

Degree Requirement..........................60