



## 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 the information technology. This is no longer true as all occupations work closely with computers. Computer science has a wide range of concentration at HCC that

includes, 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), consumer support (customer support services). These are just in the Technology and Computer Studies Division. There are also other areas on campus, 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 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 course 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 is the employment outlook for this career?

Employment of computer and information technology occupations is projected to grow 12 percent from 2014 to 2024, faster than the average for all occupations. These occupations are expected to add about 488,500 new jobs, from about 3.9 million jobs in 2014 to about 4.4 million jobs in 2024, in part due to a greater emphasis on cloud computing (the collection and storage of big data), more everyday items becoming connected to the Internet in what is commonly referred to as the "Internet of things," and the continued demand for mobile computing. (source: [www.bls.gov/ooh](http://www.bls.gov/ooh))

## What are the average earnings?

The median annual wage for computer and information technology occupations was \$81,430 (minimum BS degree) in May 2015, which was higher than the median annual wage for all occupations of \$36,200. (source: [www.bls.gov/ooh](http://www.bls.gov/ooh))

The fastest growing jobs include software developers, systems software, system engineers, and applications specialists for mobile devices, cloud computing, and databases. These career fields are projected to 10 to 19 percent with the average salary of \$75,000 or more with a bachelor's degree. (source: [www.bls.gov/ooh](http://www.bls.gov/ooh))



## 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

### 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.

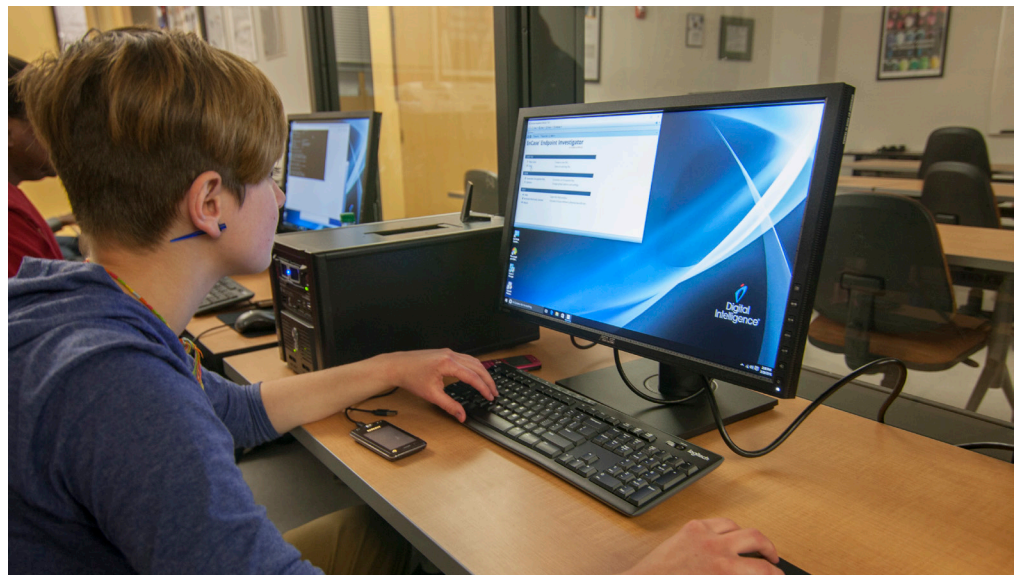
#### General Education Requirements 32-33 credits

##### 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

ENG 101 English Composition .....3  
Select another course from the approved General Education course list .....3

#### Mathematics

MAT 203 Calculus I ..... 3

#### Program Requirements..... 17 credits

CSC 102 Introduction to Information Technology.....3  
CSC 132 Introduction to C and C++ Programming. 3

#### OR

CSC 134 Introduction to JAVA Programming.....3

#### Restricted Electives ..... 11 Credits

Select one course from the following list:

CSC 109 UNIX/Linux Operating System .....3  
CSC 202 Systems Design and Analysis .....3  
CSC 232 Advanced C++ Programming .....3  
IST 154 Networking Basics.....3  
IST 160 Introduction to Security Fundamentals.....3

Select two courses from the following list:

MAT 204 Calculus II .....4  
MAT 206 Differential Equations .....4  
MAT 207 Discrete Mathematics.....4  
MAT 208 Linear Algebra .....4

#### Free Electives..... 10-11 Credits

Electives should be selected in consultation with a transfer advisor and the transfer institution.

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

#### Contact Information:

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