# What Are Some of the Fundamental Skills Necessary for a Computer Science Major?

Undergraduate degrees in computer science include several categories of courses. Many in the first years of an undergraduate degree prepare students for advanced course work in the computer science major. These courses often include basic computer applications, discrete mathematics, calculus, and algorithms in addition to basic computer science courses such as introduction to computer science.

Major course work includes several types of classes in computer science. Students complete computer science courses in programming, information technology, applications and web development, operating systems, and data communications. Examples of specific courses include java programming, data structures, management information systems, business data communication, and web development. Specialized courses might also include security, forensics, and health informatics.

# Beneficial Skills for Computer Science Students

Many skills are helpful when beginning an education as a computer science major. To begin a degree program, students will complete numerous courses that require aptitude in various topics in logic and mathematics. A large portion of the processes for coding, for instance, require high levels of mathematical ability. Prior experience with computer programming is also beneficial, as computer science majors will be required to complete a number of courses in different programming languages including C++, java, and assembler.

Additional skills include those that are often categorized as soft skills. Two of the most important of these skills include creativity and critical thinking. Many of the projects and processes in the computer science field involve finding the answer to a complicated problem. Like a puzzle, creative thinking enables a student to find the key to solving the puzzle. Critical thinking helps students to analyze and identify possibilities and strategies to solve the same puzzle. In addition, other skills beneficial to computer science majors include decision making, written and verbal communication, and working well under pressure.

The skills beneficial for students are expanded and developed for after graduation as well. Additional skills that are beneficial for computer science students can be found at the IEEE [website](https://www.computer.org/portal/web/guest/home" \t "_blank).