# 1. What degrees does the Computer Science Department offer?

We offer two undergraduate degrees: a traditional Computer Science bachelor’s degree and an Applied Computing Technology bachelor’s degree. We also offer three graduate degrees: a Master of Science (MS), a Master of Computer Science (MCS), and a Ph.D. in Computer Science. Our Master of Computer Science (MCS) degree is also offered through [CSU Online Plus](http://www.online.colostate.edu/degrees/computer-science/).

# 2. What is Computer Science?

Computer Science is the study of step-by-step computational methods for solving problems by encoding, storing, tracking and transforming information. It involves the creation of fundamental software (sets of computer instructions) for solving practical and theoretical problems and performing tasks that lend themselves to computational solutions. It extends to the construction of software that learns and adapts to circumstances in the course of solving problems and also ways to enable computers to learn and adapt.

Computer Science is different from:

* *Computer Engineering:* The study of computer hardware design and the physical circuitry that make up computers. This field is related to electrical engineering and traditionally emphasizes a hardware up understanding of computers.
* *Computer Information Systems:* The study of the use of computers and computer software to solve business problems. It concerns learning how to set up systems to solve specific business problems, for example, tracking inventories, printing payroll checks, analyzing sales. CIS majors study some programming, but generally without the technical depth required to produce large and complex software.
* *Information Technology (IT):* The study of information technology in order to be able to maintain, upgrade, and troubleshoot computer systems used within an organization. IT is focused on solving systems problems and setting up computer technology for use.

# 3. Is Computer Science the same as programming?

Many students are attracted to the Computer Science major because they either like using computers or have enjoyed some prior programming experiences. Computer programming is a broad term covering a range of software development activities, ranging from writing small programs in order to perform simple tasks, to the creation of large user applications and systems software consisting of millions of lines of complex code.

Programming and programming languages are tools of computer science, but they are not its primary subject matter. There is a reason the major is called Computer Science and not "Computer Programming" since the emphasis is on the best methods for tackling problems whose solutions are not immediately apparent. Complex and abstract problem solving plays a key role in the application of computer technology to practical problems. Before you can effectively build complex and maintainable applications, you must have fundamental knowledge of programming tools, mathematical concepts, and software development methodology. Computer Science goes far beyond merely programming. A bachelor’s degree in computer science qualifies students for jobs as “software engineers,” the most common job title for graduates with computer science degrees. A bachelor’s degree in computer science also teaches students critical time management, problem solving, software engineering, networking, and security skills.

# 4. Is Computer Science right for me?

Computer Science is a vital, fun field of study, but it is not for everyone. Because it is such a broad field, your success can depend a great deal on selecting the program of study that best fits your interests. Please read the first two FAQs at the top of the page. If you’re still unsure if Computer Science is right for you, here are two analogies that might help you decide:

* *Computer Game Analogy:* 1) if you simply like playing computer games, CS is probably not a good fit; 2) if you want to program computers to play games, CS may or may not be a good fit; 3) if you are interested in the theory and practice of making games run quickly, or the precise mathematical techniques for modeling physical objects and processes on the screen, CS is likely to be an excellent fit
* *Car and Driver Analogy:* Most people drive cars and even enjoy driving them, but this doesn’t mean they have the ability or talent to build or design automobile engines; likewise people who enjoy using computers may or may not be well-suited to the study of computer science. However, if you wonder how software works and why the designers made the choices that they did, and how to improve upon those choices, computer science is likely to be a good fit.

# 5. What is Applied Computing Technology (ACT)?

It is a combination of computer science and specialized courses in other disciplines. This major allows students the freedom to connect standard CS topics with more focused real-world applications. At this time, we offer 3 concentrations: Computing Technology, Computing and Human Factors, and Computing Education.

The *Applied Computing Technology-Computing Technology* concentration emphasizes the use of basic programming skills and computing technology (e.g., web development, computer and network system administration) applied to a variety of areas needed by industry and other organizations to keep their computer systems functioning, analyze processes and organizational needs, or running a web site (for example). This is primarily an Information Technology degree program.

The *Applied Computing Technology-Human Factors* concentration focuses on the design, development and implementation of computer interfaces, bringing together techniques from computer science and psychology to evaluate, design and produce usable interfaces.

The *Applied Computing Technology-Computing Education* concentration is a teacher training concentration that licenses graduates to teach computer-related subjects in public schools (K-12) as well as provide local computer technology expertise in the schools.

Other specialized concentrations may be added as time goes on.

# 6. What courses should I take in high school, or before I transfer, to prepare me for Computer Science?

Take all the science, mathematics, and English you can. Strong mathematics skills are crucial for Computer Science majors, particularly during the first two years. New majors tend to struggle the most with weaknesses related to math. Clear writing is important to computer science since most software is developed by groups of software engineers. Computer scientists devote considerable effort to writing in the form of specification documents, progress reports, user documents and internal communications arguing the pros and cons of alternative designs and approaches.

Computer programming courses are also useful. In particular, AP Computer Science prepares you for the CS major, and you can also earn 4 credits toward your degree. Transfer students should have taken at least one Calculus course and one computer programming course (preferably Java, if available, or C++). Prospective students planning to enter our program may also want to familiarize themselves with the Linux operating system, which is the primary OS used by most computer science programs.

# 7. What skills or talents will help me succeed in Computer Science?

Useful skills include: strong problem solving skills, logical thinking, community skills (teamwork, group participation), mathematical skills, writing skills and a willingness to concentrate on precise details for an extended period of time.

# 8. What are the requirements for a CS degree?

Degree requirements for CS majors can be found at [CS Major Requirements](https://www.cs.colostate.edu/cstop/csacademics/csdegrees/csbachelors/major.php)

# 9. What jobs are available to Computer Science graduates?

We will ensure you learn the skills you need to be competitive and successful in the field when you graduate. The Department’s close connections to the computer industry help us keep abreast of current industry practices. About 70% of our students have job offers upon graduation. Our graduates are highly sought after by major high-tech, computer software, and aerospace companies, like Microsoft, IBM, Hewlett-Packard, Intel, Motorola, Raytheon, and Lockheed-Martin. Employment opportunities are also rapidly growing in small and medium sized companies.

For more information about careers in Computer Science, please visit: [Careers in Computer Science](https://www.cs.colostate.edu/cstop/csprostudents/cscareers.php)

# 10. What is the average starting salary for people with a BSCS?

In a recent survey, the average starting salary of our students was much greater than other majors in our college (approximately $65,000 per year). This starting salary even edged-out Computer Engineering average starting salaries, which reflects a growing emphasis on software. Starting salaries can vary depending on a variety of factors, such as company size, location, and the employee's qualifications.

# 12. What minors go well with a Computer Science degree?

Many students are able to receive a mathematical minor without taking on additional classes through careful planning, further helping them understand on a deeper level the role math plays in the computer science field.

Any minor related to science or technology can open additional careers or specializations for computer scientists.

Minors are available for almost every department and subject taught at Colorado State University.

# 14. What can I do with a minor in Computer Science?

A minor in computer science will teach basic programming and software engineering skills, time and project management skills, and increase computer competency. These skills can complement any area of study as the reliance upon computers will only increase.