



Computer Science vs Information Technology

What Technology Degree Should You Choose?

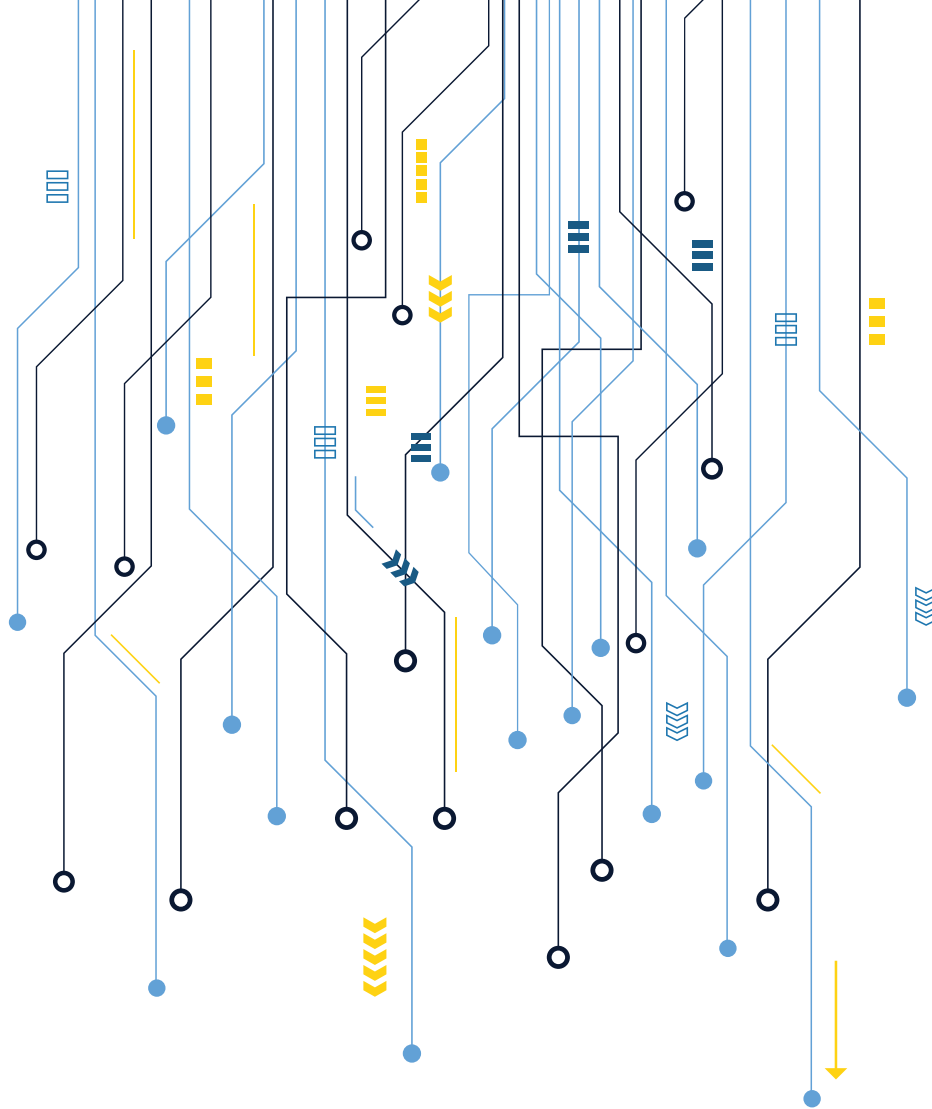


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Technology is filled with careers that pay well and have a strong outlook. If you're changing careers or looking to start off your career in an exciting and rewarding field, pursuing a technology degree in computer science or IT is a great choice.

So, which one should you choose? Either field can help you land a great job in technology. However, there are some differences you should be aware of before making your decision.



Computer Science vs Information Technology: Understanding the Difference

There is a simple way to look at computer science vs information science: Computer science emphasizes the “science” aspect of the phrase, while IT examines technical solutions from a strategic business perspective.

Computer science looks at the “why” behind computer programs and operating systems. The field does this by analyzing problems and designing solutions using mathematics and computer science techniques. As a result, professionals in computer science are scientists. They understand different programming languages, software, database design and development, various computer processes, and more.

Like computer science, information technology includes technical topics, but the focus is different. IT is more interested in how operating systems, software, and applications can be used and improved upon to solve specific business problems. That last part is critical. IT professionals examine how technological impacts an organization. Often, they’re working with clients and coworkers to develop and implement a technology plan that meets certain business needs.

VISUALIZE THE DIFFERENCE

If you're still not sure what computer science or IT means for you and your future, maybe it'll help to see it. Here's a side-by-side look at the required courses for bachelor's degrees in each field.

COMPUTER SCIENCE

Required courses for the online Bachelor of Science in Computer Science at CSP

- Introduction to Computer Science
- Math for Computer Science
- Introductory Programming with Java
- Modern Web Design
- Discrete Mathematics
- Database Design
- Object Oriented Programming in Java
- Server-Side Development
- Computer Architecture and Operating Systems
- Language Design and Implementation
- Software Engineering
- Data Structures and Algorithms
- Computer Science Capstone

INFORMATION TECHNOLOGY MANAGEMENT

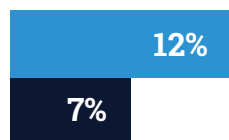
Required courses for the online Bachelor of Arts in Information and Technology Management at CSP

- Organizational Behavior
- Business Fundamentals and Entrepreneurship
- Legal Environment of Business
- Applied Accounting and Finance
- Marketing Principles
- Business Analytics, Tools & Techniques
- Bridging the IT Business Gap for Innovation
- Strategic Project Management for IT
- Business-Driven Information Systems and Security
- Data Management for Intelligent Business
- Applied Research Project

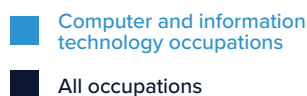
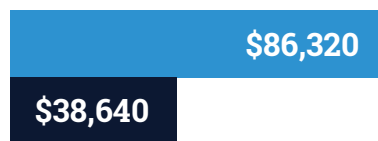
Note that these are only the required courses. Elective courses can alter how one degree would compare with the other.

Generally speaking, computer science is more technical and focused on the inner workings of a topic like databases, data structures, and software engineering. IT is by no means outside of technical subjects, as, for instance, data management and security are highly scientific. However, the overall emphasis is rooted in using technology to solve business problems. Even highly nuanced subjects like data management and security are approached from a business standpoint.

Projected Growth by 2028:



Median Annual Wage:



A degree in computer science or IT can be the ticket to an in-demand, lucrative career. According to the Bureau of Labor Statistics (BLS), employment of computer and information technology occupations is projected to grow 12% through 2028, with a median annual wage of \$86,320. Compare those figures to 7% and \$38,640, respectively, for all occupations..

Source: Bureau of Labor Statistics

THE BOTTOM LINE

There are noticeable differences for computer science vs information technology. If you're considering a technology degree, you can start to gauge where your personal interests and career plans land.

Be careful not to overvalue the differences. There's no need to panic if you're still not sure what field you should pursue. The good news to this debate between computer science and IT is that either degree is acceptable for many tech jobs. Both majors provide a broad overview of technology topics, and you'll always have the opportunity to customize your degree with electives.

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What careers can you target with your technology degree? Take a look at the following lists of in-demand computer science and IT jobs to see just a few examples. Employment data is from the BLS, unless otherwise noted.



In-demand Computer Science Jobs

Here's a look at a few computer science jobs with strong employment outlook.

COMPUTER AND INFORMATION RESEARCH SCIENTISTS

As technology evolves, there will be new and innovative ways to analyze data, approach software and design products like robots. The potential is staggering. For instance, business and economics firm McKinsey Global Institute estimate that artificial intelligence techniques can have a multi-trillion-dollar impact annually. Across nine business functions in 19 industries, artificial intelligence can result in \$3.5 to \$5.8 trillion in value each year.

If you enjoy applying creativity to the science behind computers and technology, you could consider becoming a computer or information research scientist. This is a high-paying career with a strong job outlook.

Job Responsibilities

Computer and information research scientists create new approaches to computing technology and examine new ways for existing technology. By studying complex problems in computing, these professionals provide new ideas and uses for technology in business, science, medicine, and other fields.

Here are some typical duties you can expect to have as a computer or information research scientist:

- Develop theories and models to address fundamental issues in computing
- Invent new computing languages, tools, and methods to enhance how people work with computers
- Develop and improve software systems
- Design experiments testing the effectiveness of software systems
- Publish findings in academic journals and present the results at industry conferences
- Work alongside scientists and engineers

In this career, you can choose from several specialties. Common areas to specialize are data science, robotics, and programming.

Salary and Job Outlook

Computer and information research scientists earn a median annual wage of \$118,370. The highest 10% earn more than \$183,820 and the lowest 10% earn less than \$69,230.

Employment of these professionals is projected to grow 16% through 2028. Key reasons for this high level of demand include the desire for better technology, rapid growth in data collection, and an increased emphasis on cybersecurity.

How to Become a Computer or Information Research Scientist

If you'd like to pursue this career, a bachelor's degree in computer science or a related field is a good foundation. The BLS noted that this level of education is sufficient for some jobs in the federal government. Most jobs for computer and information scientists require a master's degree in computer science or a related field.

DATABASE ADMINISTRATORS

Databases are simply a way to organize into rows, columns, and tables. It's easy to overlook how common and integral databases are in business. Online retailers use databases to capture and process thousands of transactions a second, while protecting data. Similarly, financial institutions and healthcare organizations must manage and access databases quickly and efficiently, while ensuring the safety of sensitive data.

Database administrators help ensure that databases run smoothly and meet an organization's needs. It's a career choice that blends higher-than-average job outlook and pay with technical expertise and business awareness.

Job Responsibilities

Becoming a database administrator means that you'll oversee software that stores and organizes data. You'll make sure that information is available to users and protected from unauthorized access.

Here are some typical duties you can expect to have as a database administrator:

- Prevent data loss by backing up and restoring data as needed
- Examine the security of organizational data
- Ensure that the database operates efficiently and accurately
- Perform maintenance on database and update access permissions
- Merge old databases into new ones

Often, database administrators take care of any tasks relating to an organization's database. Sometimes there is an opportunity to specialize in system database administration or application database administration. The first specialty, system database administration, refers to physical and technical aspects of a database, such as the upgrades and patches needed to fix program bugs. Application database administration is a specialty that deals with databases used for a specific application or set of applications, like customer service software.

Salary and Job Outlook

Database administrators earn a median annual wage of \$90,070. The highest 10% earn more than \$138,320 and the lowest 10% earn less than \$50,340.

Employment of these professionals is projected to grow 9% through 2028. Companies in all sectors of the economy will have increased data needs, and database administrators will be needed to organize and present data so that analysts and stakeholders can understand it. Additionally, another factor that will positively impact the growth of database administrators is the rise in database-as-a-service, which allows database administration to take place over the internet by a third party.

How to Become a Database Administrator

To become a database administrator, you'll typically need a bachelor's degree in a subject like computer science. Other computer- and IT-related subjects are appropriate for this career as well, which means that you could earn a degree in either area and pursue a future in database administration. Larger firms may prefer applicants with a master's degree in computer science, information systems, or IT.

SOFTWARE DEVELOPERS

There may not be a more obvious in-demand computer science career than software developer. After all, new smartphone apps continue to show up in marketplaces, and the demand isn't letting up. Plus, more consumer electronics are integrating computer systems, such as appliances, driving growth. Finally, add to those reasons the number of major corporations that need to innovate software to manage core business functions, and you can see how badly more software developers are needed.

Job Responsibilities

Becoming a software developer means that you'll help develop the applications and programs that people use on a computer or another device. You could also play a role in developing underlying systems that run those devices or that control networks.

Here are some typical duties you can expect to have as a software developer:

- Consider users' needs before designing, testing, and developing software.
- Recommend software upgrades to existing programs and systems.
- Plan how each part of an application or system will work together and design it.
- Create models and diagrams that help programmers develop software code needed for an application.
- Oversee software maintenance and testing to make sure a program functions correctly.
- Document each aspect of an application or system as reference for future maintenance and upgrades.

Specialties within software development include applications and systems. Applications software developers design computer applications ranging from word processors to games. That is contrasted by systems software developers, who create systems that keep computers functioning properly. Examples include computer operating systems or those used in consumer electronics like cell phones and cars.

Salary and Job Outlook

Software developers earn a median annual wage of \$105,590. The highest 10% earn more than \$161,290 and the lowest 10% earn less than \$61,660.

Employment of these professionals is projected to grow 21% through 2028. In addition to the large increase in the demand for computer software, computer security concerns and software offered over the internet could also positively impact the growth of software developers.

How to Become a Software Developer

Becoming a software developer often takes a bachelor's degree in computer science, although related fields may also be acceptable. While strong programming skills are important, writing code is not the first priority of software developers. They work closely with programmers, making an in-depth and updated knowledge of computer languages and tools significant.

MORE CAREERS YOU CAN PURSUE WITH A COMPUTER SCIENCE DEGREE





In-demand IT Jobs

Here's a look at a couple IT jobs with strong employment outlook.

COMPUTER AND INFORMATION SYSTEMS MANAGERS

Managers are needed in virtually every type of work, and the computer science/IT world is no exception. Computer and information systems managers help organizations carry out their technological goals. In addition to strong job outlook, they're rewarded handsomely with typical salary figures well into six figures.

Job Responsibilities

Computer and information systems managers, who are also called IT managers or IT project managers, plan and help carry out computer-related activities in an organization.

Here are some typical duties you can expect to have as a computer or information systems manager:

- Analyze a company's computer needs and come up with upgrades for consideration.
- Oversee installation and maintenance of hardware and software.
- Protect the organization's network, data, and electronic documents.
- Consider the cost and benefits of new projects and explain findings to top executives.
- Search for new ways to upgrade the organization's computer systems.
- Manage personnel needs for the department.
- Guide the work of other IT professionals.
- Negotiate with tech vendors.

As you might expect, there are several types of IT managers, so specific job responsibilities will vary based on title and the organization. For instance, IT security managers oversee network and data security while IT directors oversee staffing and the overall department. There are C-level positions in this career track, too. Chief information officers determine technology or information goals and then implement technological solutions. Another example is chief technology officers, who are in charge of evaluating new technology and figuring out how it can help the organization.

Salary and Job Outlook

Computer and information systems managers earn a median annual wage of \$142,530. The highest 10% earn more than \$208,000 and the lowest 10% earn less than \$85,380.

Employment of these professionals is projected to grow 11% through 2028. Firms will increase their operations to digital platforms, driving demand of IT managers. Other trends impacting job growth in this field is increased focus on cybersecurity and a rise in the popularity of cloud computing.

How to Become a Computer or Information Systems Manager

In addition to work experience, you'll need a bachelor's degree in a computer-related field to become an IT manager. Your major can be in a field like IT management or computer science. Whatever degree you choose, courses in management, computer programming, software development, and mathematics are important, according to the BLS. Some employers require computer and information systems managers to have a master's degree.

INFORMATION SECURITY ANALYSTS

The global cybersecurity market is projected to exceed \$1 trillion in spending by 2021. Growing threats to organizations' data security will have considerable impact on professionals tasked with protecting computer networks and systems.

Looking for a growing and lucrative career field? There may be no better combination of employment factors in computer-related occupations than information security analyst. Outlook for this profession is the strongest of all major computer and information technology occupations, according to the BLS, and median pay is just under six digits.

Job Responsibilities

As an information security analyst, you'll plan and carry out security measures to help protect an organization's computer networks and systems. Due to the increasing number of cyberattacks and the steps needed to confront these threats, responsibilities in this career are growing.

Here are some typical duties that you can expect to have as an information security analyst:

- Monitor networks for security breaches and investigate any violations that occur.
- Create reports that detail damage caused by security breaches.
- Install software that can protect data.
- Conduct penetration testing, which involves simulating attacks in an effort to expose vulnerabilities.
- Research the latest information security trends.
- Help develop standards and best practices for the organization.
- Assist employees with installing and updating security products.

Salary and Job Outlook

Information security analysts earn a median annual wage of \$98,350. The highest 10% earn more than \$156,580 and the lowest 10% earn less than \$56,750.

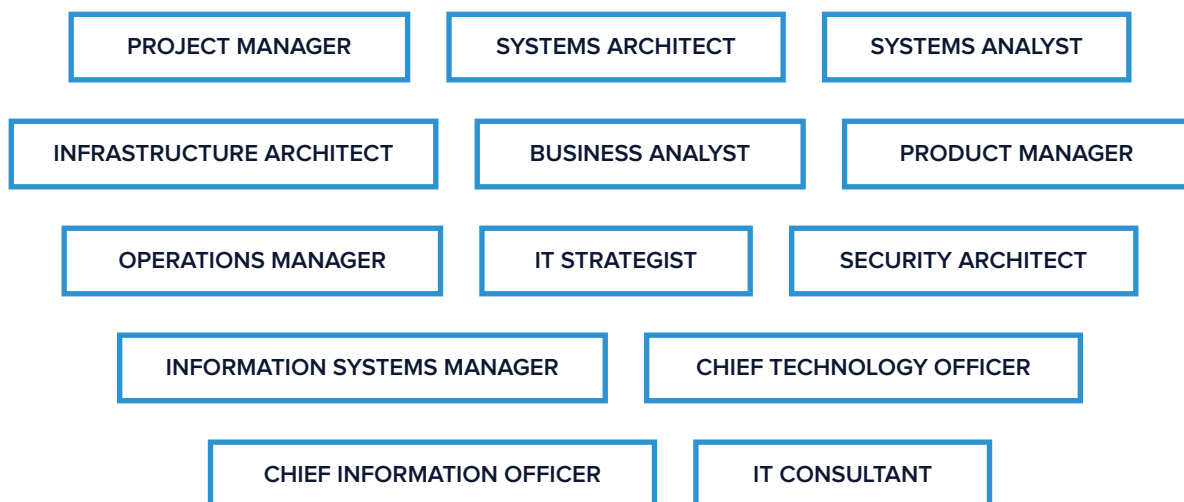
Employment of these professionals is projected to grow 32% through 2028. That number places information security analysts among the top 20 fastest growing occupations. Major reasons for that growth include the rise in cyberattacks, as well as the need for financial corporations and healthcare institutions to protect sensitive information.

How to Become an Information Security Analyst

If you'd like to become an information security analyst, you will probably need a bachelor's degree in a computer-related field. Most positions require this level of education along with some experience.

An IT degree may be a slightly better fit for this role than computer science, given the strategic and business focus that an IT curriculum provides. However, either degree can allow you to pursue a career in cybersecurity.

MORE CAREERS YOU CAN PURSUE WITH AN IT DEGREE





Ready to Make Your Choice?

The future is bright for tech jobs across computer science and IT. With strong salaries and excellent job outlooks, you can look forward to a bright future in tech no matter where you are in the country. You can feel safe knowing that there are compelling options on either side of the computer science vs information technology discussion.

No matter where you live, you can obtain the education needed for these careers. An online BS in Computer Science or an online Information Systems degree can qualify you for several of the aforementioned careers. In a convenient online format, you can get the strong tech foundation you need for roles like database administrator, software developer, web developer, IT manager, information security analyst, and more. If you already have your bachelor's degree, you can pursue higher salary potential and more advanced roles with an online master's in IT.

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