

COMPUTER SCIENCE

What can I do with this major?

The field of computer science is continually changing. The areas listed below do not exhaust possible career options.

See also *What Can I Do With This Major in Management Information Systems*.

AREAS

EMPLOYERS

STRATEGIES

PROGRAMMING

Operating Systems
Application Systems:
 Scientific
 Engineering
 Business
Maintenance
Research and Development

Computer systems design firms
Software developers
Data processing/Management firms
Contract and temporary employers
Most areas of business, government and non-governmental organizations:
 Financial institutions, insurance companies, consulting firms, manufacturers, computer companies, telecommunications companies, retailers, healthcare organizations, hotels and restaurants, entertainment companies, environmental management firms, transportation companies, education institutions, research institutions, city, state and federal government

Seek programming experience through volunteer positions, internships, and co-ops.
Develop attention to detail, logical thinking, and communication skills.
Exhibit patience and creativity for designing programs.
Learn to work effectively independently on teams and with end-users while maintaining deadlines.
Supplement computer science degree with courses in business, science, or engineering.
Maintain current knowledge of programming languages; vendor and professional certifications may increase job prospects.
Consider earning the Certified Computing Professional designation by completing a series of exams and experiential requirements.
Earn a master's degree for upper level positions.

SYSTEMS DEVELOPMENT

Planning/Analysis
Design
Building/Coding
Integration/Testing
Operations/Maintenance
Project Management

Most areas of business, government and non-governmental organizations:
 Financial institutions, insurance companies, consulting firms, manufacturers, computer companies, telecommunications companies, retailers, healthcare organizations, hotels and restaurants, entertainment companies, environmental management firms, transportation companies, education institutions, research institutions, city, state and federal government

Develop excellent interpersonal skills for effective communication with technical and non-technical colleagues and clients.
Seek knowledge of industries, business areas, or government agencies of interest. Complete a minor to gain specialized knowledge related to a field of interest.
Strengthen logical thinking and problem solving skills.
Maintain current knowledge of computer languages and technology.
Gain programming experience and specialize for increased opportunities.

AREAS

EMPLOYERS

STRATEGIES

SYSTEMS DEVELOPMENT continued

Obtain business experience through internships or part-time employment.
Supplement program with courses such as accounting, management, human resources, and/or consulting to increase understanding of business theory.
Earn a graduate degree in technology or business for advanced opportunities in analysis, project management, and executive operations.

NETWORK TECHNOLOGY

Intranet
Development
Installation
Testing
Monitoring
Maintenance
Security
Support
Hardware and Software Design

Most areas of business, government and non-governmental organizations:
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Seek work experience in university computer labs or through related part-time jobs, internships, or volunteer opportunities.
Develop effective analytical and problem solving skills.
Expect to spend a significant amount of time responding to inquiries from colleagues, customers, and employees.
Acquire strong oral and written communication skills and an interest in helping others.
Gain knowledge in a variety of computer areas including programming, software, and hardware.
Stay abreast of the latest network technologies.
Consider earning applicable certifications such as Cisco or Microsoft for some positions.

DATABASE ADMINISTRATION

Development
Installation
Testing
Maintenance/Support
Archiving/Security
Upgrading
Systems Integration
Management

Most areas of business, government and non-governmental organizations:
Financial institutions, insurance companies, consulting firms, manufacturers, computer companies, telecommunications companies, retailers, healthcare organizations, hotels and restaurants, entertainment companies, environmental management firms, transportation companies, education institutions, research institutions, city, state and federal government

Develop logical thinking skills, attention to detail, and the ability to concentrate for long periods of time.
Obtain technical experience through paid or volunteer positions.
Seek general knowledge of computer languages and database management software; consider specializing in one for increased marketability.
Acquire strong communication skills to prepare for work with teams of programmers and with staff who may have limited computer training.

AREAS	EMPLOYERS	STRATEGIES
<u>INTERNET</u> Programming Software Design Systems Development (see Page 2) Web Design/Maintenance	Internet exchange points (IXPs) Internet service providers Software vendors Internet-related companies: browsers, search engines, web design services business, government and nongovernmental organizations Consulting firms Self-employed	Supplement major with courses in web design, graphic design, internet development, or network architecture. Pursue business classes or a business minor for consulting and systems development positions. Gain experience as a webmaster through part-time jobs, internships, or volunteering to design web pages for student organizations. Develop excellent communication skills and prepare to work on teams which may include content authors, graphic artists, and/or programmers. Maintain current knowledge of web-based programming languages.
<u>EDUCATION</u> Teaching Instructional Technology	Colleges and universities Proprietary (for profit) schools Public and private schools, K-12 Corporations	Gain experience working with students through tutoring, part-time employment, internships in computer labs, and/or other technical positions. Develop excellent interpersonal and public speak- ing skills. Inquire about certification process which is required for K-12 teaching and varies by state. Pursue a master's degree for teaching at most com- munity colleges or two-year institutions. Seek a doctoral degree related to information or computer sciences for teaching opportunities at colleges and universities. Develop a research specialty for university teaching. Earn a graduate degree in information technology or a related field for instructional technology.

AREAS	EMPLOYERS	STRATEGIES
<u>TECHNICAL SUPPORT</u> Customer/Product Support Sales Marketing Technical Writing	Software/hardware manufacturers Systems developers Technical service providers Retail stores Education institutions	Develop excellent communication skills and an interest in helping customers solve problems. Exhibit patience and a commitment to customer satisfaction. Secure experience working in university computer labs and at help desks. Obtain general sales or customer service experience. Acquire extensive knowledge of merchandise for retail sales positions. Supplement curriculum with technical writing courses to develop skills.

GENERAL INFORMATION

- Consider earning a minor in math or pursuing it as a second major, as a computer science major is heavily math-based.
- Consider a dual major to help shape toward a particular career, since computer science intersects with a number of other fields
Examples: Biology for a career in bioinformatics; Political science/criminal justice for career in security and information policy; Fine arts for a career in animation; or, Business for some types of IT careers.
- Develop strong interpersonal, communication and teamwork skills. Patience and perseverance are essential for computer science professionals.
- Complete informational interviews with current computer science professionals to help establish career goals.
- Obtain an internship, co-op or part-time job in a relevant area to increase employability. Related experience is essential to employers hiring computer science majors.
- Obtain vendor-specific or networking certifications to gain a competitive edge for some positions.
- Obtain an area of specialization through a master's degree or by doing advanced coursework.
- Expect to work extended and/or irregular hours at times and to be "on call."
- Prepare to learn new information on a regular basis through online discussions, classes, conferences, periodicals, and update your skills accordingly.
- Note that a major in computer science can lead to being a designer, creator, and inventor of new technology. Example areas include computer hardware architecture, virtual reality, and robotics.
- Note that an interest in computers may not translate into an interest in computer science, as the major is heavily programming and math-based.
- It might be better to major in Business Administration and minor in Computer Science if you want to work in the private sector because the cloud is transforming IT and creating hybrid roles across the enterprise
- To enter the gaming industry, investigate training programs specific to game design and seek as much exposure to designing as possible. Pursue entry-level opportunities, such as tester, to gain experience.