

# 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 including:  
    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.

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#### **SYSTEMS DEVELOPMENT**

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

Most areas of business, government and non-governmental organizations including:  
    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, 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 including:  
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 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 including:  
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**

**INTERNET**

Programming  
Software Design  
Systems Development (see Page 2)  
Web Design/Maintenance

Internet exchange points (IXPs)  
Internet service providers  
Software vendors  
Internet-related companies including: 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, programmers, etc.  
Maintain current knowledge of web-based  
programming languages.

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**EDUCATION**

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

### TECHNICAL SUPPORT

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.