

Major Possibilities: Computer Science



Summary

- Students who major in Computer Science should enjoy both mathematics and working with computers.
- Employment in computer science-related fields is expected to increase much faster than the average as organizations continue to expand their use of technology.
- There are many jobs available for students with a bachelor's degree in Computer Science. However, those who wish to pursue a career as a computer scientist should receive a PhD because their primary function will be to conduct research.
- Writing and speaking skills are still important because you will need to communicate effectively with people who have less technical knowledge than you.

Computer Science major synopsis

The Computer Science major begins with courses that use Java to teach object concepts. Students will then apply concepts they've learned from these beginning courses to more technical computer programming courses. The Computer Science major requires that students take a minimum of 3 math courses: Calculus I & II and Linear Algebra.

Sample occupational areas

Programmers

Computer programmers write, test, and maintain the detailed instructions, called programs, which computers follow to perform their functions. According to the Bureau of Labor Statistics, almost 8 out of 10 computer programmers held an associate's degree or higher in 2006; nearly half held a bachelor's degree, and 2 out of 10 held a graduate degree. Experience with a variety of programming tools and the latest technology is crucial in order to find a job in this competitive industry.

Scientists

Computer scientists work as theorists, researchers, or inventors. Their jobs are distinguished by the higher level of theoretical expertise and innovation they apply to complex problems and the creation or application of new technology. Other jobs related to this field include network systems and data communications analysts, database administrators, and telecommunications specialists. Some of these jobs require an associate's degree, but most prefer at least a bachelor's. Advancement in a career as a computer scientist necessitates a master's degree and PhD.

Software Engineers

Computer software engineers apply the principles of computer science and mathematical analysis to the design, development, testing, and evaluation of the software and systems that make computers work. There are two types of computer software engineers. Computer applications software engineers analyze users' needs and design, construct, and maintain general computer applications software or specialized utility programs. Computer systems software engineers coordinate the construction, maintenance, and expansion of an organization's computer systems. A bachelor's degree is usually sufficient, though a master's degree may be preferred for more complex work.

Systems Analysts

Computer systems analysts help organizations to use technology effectively and to incorporate rapidly changing technologies into their existing systems. In this occupation, as well as in the occupations previously listed, it is important to stay informed of the latest technological developments. Analysts who specialize in helping an organization select the proper system software and infrastructure are often called system architects. Analysts who specialize in developing and fine-tuning systems often are known as systems designers. A bachelor's degree or master's degree is usually required.

Sample job titles

Account Executive
Applications Programmer
Artificial Intelligence Specialist
Auxiliary Equipment Operator
CAD Specialist
CAM Technician
Computer Account Representative
Computer Communications Specialist
Computer Salesperson
Computer Service Person
Computer Systems Manager

Computer Technician
Database Administration
Hardware Engineer
Information Designer
Information Systems Auditor
Internet Developer
Management Consultant
Multimedia Writer
Network Analyst
Operations Research Analyst
Product Communications Analyzer

Product Design Engineer
Quality Control Engineer
Retail Store Manager
Software Designer
Support Analyst
Tape Librarian
Teacher/Professor
Technical Writer
Web Page Designer

Sample internship employers of SU students

3M Worldwide
Abbott Laboratories
AE Schwartz & Associates
American Express
The Boeing Company
Dell, Inc.

Group Logic, Inc
Hewlett Packard
Light & Magic
IBM
Intel
Microsoft

Sample full-time employers of SU grads

Application Developer (Perot Systems, Inc.)
Assistant Computer Consultant (SU ITS)
Business Analyst (Hewitt Associates)
Computer Programmer (Bownds Consulting Company)
Database Management (Elfin Oil Inc.)
Engineer's Assistant (Insight Global)
I/T Manager (Sonterra Energy Corp.)
I/T Specialist (IBM)
Information Systems Coordinator (Ministry of Science and
Technology of Mozambique)
Inside Sales (National Instruments)
Internet Application Development
Management Trainee (Enterprise Rent-A-Car)
Network and Systems Administration (SU)

Network Engineer (Lockheed Martin)
PC Technician (DCAS Southwest Solution)
Programmer (Southwestern University)
Programmer (Associated Colleges of the South)
Programmer/Analyst (Data Recognition Inc.)
Sales Representative (Time Warner Cable)
Software Consultant (BPA Systems)
Software Engineer (Power Micro Research)
Software Engineer (International Studies Abroad)
Systems and Development Specialist (Associated Colleges of the
South Technology Center)
Systems Engineer 1 (Raytheon)
Technical Sales Representative (National Instruments)

Professional associations

American Computer Science Association: www.acsa.net
American Society for Information Science: www.asis.org
Association for Computer Machinery: www.acm.org
Association for Women in Computing: www.awc-hq.org
Computing Research Association: www.cra.org
IEEE Computer Society: www.computer.org
Independent Computer Consultants Association: www.icca.org
Society for Industrial and Applied Mathematics: www.siam.org

Additional Web resources

Careers in Computer Science: http://jobs.acm.org/home/index.cfm?site_id=1603
Computer Science Careers: www.umsl.edu/divisions/business/mis/misvscsc.html
Computer World Career News: www.itworld.com/
CSC Career Source: careers.csc.com
Developers.Net: www.developers.net
Java Jobs: <http://javajobs.com/>
Jobs in Math: www.ams.org/mathweb
SIAM-AMS Non-Academic Careers in Math Sciences: www.ams.org

Career Services' print resources

100 Jobs in Technology
101 Careers in Mathematics
Actuaries' Survival Guide
Career Guide for the High-Tech Professional
Career Opportunities in Internet, Video Games, and
Multimedia
Careers for Computer Buffs
Careers for Cybersurfers
Careers for Number Crunchers
Careers in Computers
Careers in Engineering
Careers in Graphic Arts & Computer Graphics

Careers in High Tech
Careers in Web Design
Great Jobs for Computer Science Majors
Great Jobs for Engineering Majors
Great Jobs for Math Majors 2nd Ed.
High-Tech Careers for Low-Tech People
Information Technology Jobs in America
Internet Jobs!
Opportunities in Animation and Cartooning Careers
Opportunities in Computer Systems Careers
Opportunities in Engineering Careers
The JobBank Guide to Computer and High Tech Companies