



CENTER FOR CAREER & PROFESSIONAL DEVELOPMENT

Major Possibilities: Computer Science

Quick Facts

- Students who major in Computer Science should enjoy both mathematics and working with computers. Computational mathematics is an interdisciplinary major blending the two fields even more.
- 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 earn 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. These 21st century career-readiness skills can be developed in other liberal arts coursework, through campus involvement, and in internships. Internships also help shape professional identities and make meaning of the academic experience.

Computer Science Major Synopsis

The Computer Science major can stand alone or be blended with Mathematics to become the Computational Mathematics major. Computer Science majors begin 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 for a total of at least 10 courses and 35 credit hours. The Computer Science major requires that students take two supporting math courses: Calculus I 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. Most programmers have a bachelor's degree. Experience with a variety of programming tools and the latest technology is crucial in order to find a job in this competitive industry. Certification is another way to demonstrate competence to potential employers.

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 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

Applications Programmer	Database Administrator	Product Design Engineer
Artificial Intelligence Specialist	Financial Analyst	Quality Control Engineer
Auxiliary Equipment Operator	Hardware Engineer	Software Developer/Engineer
CAD Specialist	Information Designer	Support Analyst
CAM Technician	Information Systems Coordinator	Teacher/Professor
Computer Account Representative	Management Consultant	Technical Writer
Computer Communications Specialist	Multimedia Writer	Web Developer
Computer Sales and/or Service	Network Analyst	Website Designer
Computer Systems Manager	Operations Research Analyst	
Computer Technician	Product Communications Analyst	

Sample Internship Employers of SU Students

3M Worldwide	Dell, Inc.	IBM	Spiceworks, Inc.
Abbott Laboratories	Georgetown ISD	Intel	The Boeing Company
AE Schwartz & Associates	Group Logic, Inc.	Light & Magic	
American Express	Hewlett Packard	Microsoft	

Sample Full-Time Employers of SU Grads

Application Developer (Perot Systems, Inc.)	Network and Systems Administrator (Southwestern University)
Assistant Computer Consultant (Southwestern University)	Network Engineer (Lockheed Martin)
Associate Applications Developer (Union Pacific)	PC Technician (DCAS Southwest Solution)
Associate Consultant (ThoughtWorks)	Programmer/Analyst (Data Recognition Inc.)
Associate Software Engineer (Kivo Commerce)	Programmer (Associated Colleges of the South)
Business Analyst (Hewitt Associates)	Research Assistant (Rice University)
Computer Programmer (Bownds Consulting Company)	Service Desk Agent (Mitratch)
Data Administrator (Texas Comptroller's Office)	Software and Hardware Developer (Amazon)
Database Management (Elfin Oil Inc.)	Software Consultant (BPA Systems)
Developer (E'Lon & Company)	Software Consultant (Denim Group)
Developer (Sparefoot)	Software Engineer (Accenture)
Engineer (Accruent)	Software Engineer (IBM)
Engineer's Assistant (Insight Global)	Software Engineer (International Studies Abroad)
ERP Analyst (Interstate Batteries)	Software Engineer (Spiceworks, Inc.)
Help Desk Technician (Southwestern University)	Systems and Development Specialist (Associated Colleges of the South Technology Center)
Independent Contractor/Programmer (Night Owl Games)	Systems Engineer 1 (Raytheon)
Information Systems Coordinator (Ministry of Science and Technology of Mozambique)	Technical Sales Representative (National Instruments)
iPhone/Mobile Developer (Accella LLC)	Technology Analyst (Accenture)
IT Engineer (Wipro)	Test Automation Engineer (Spiceworks Inc.)
IT Manager (Sonterra Energy Corp.)	Web Developer (AIB Inc.)
Junior Developer (Data Connect Corporation)	Web Software Application Engineer (Charles Schwab)

Professional Associations

American Computer Science Association	Association for Women in Computing
American Mathematical Society	Computing Research Association
Association for Computing Machinery	IEEE Computer Society
Association for Information Science and Technology	Society for Industrial and Applied Mathematics