# Computer Science

# Programming

## Operating systems

## Application systems

- Scientific
- Engineering
- Business

## Maintenance

## Research and development

# Programming Employers

- Computer systems design firms
- Software developers
- Data processing/Management firms
- Contract and temporary employers
- Most areas of business, government and non-governmental organizations:

# Programming Strategies

- 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 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

# Systems Development Employers

- 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

# Systems Development Strategies

- 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.
- 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.

# Internet

- Programming
- Software design
- Systems development
- Web design/maintenance

# Internet Employers

- 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

# Internet Strategies

- 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.

# Technical Support

- Customer/Product
- Support
- Sales marketing
- Technical writing

# Technical Support Employers

- Software/hardware manufacturers
- Systems developers
- Technical service providers
- Retail stores
- Education institutions

# Technical Support Strategies

- 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 Computer Science 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.

# General Computer Science Information (Continued)

- 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.