BUSINESS INFORMATION TECHNOLOGY CAREERS

CAREER SERVICES | CAREER PATHS

Computer and information systems managers normally have a bachelor's degree in a computer or information science field. Management information systems (MIS) programs usually include business classes as well as computer-related ones. Technological advances come so rapidly in the computer field that continual study is necessary to remain competitive.

Most computer programmers have a bachelor's degree; however, some employers hire workers with an associate's degree. Most programmers specialize in a few programming languages.

Database administrators most often have a bachelor's degree in MIS or a computer related field. Before becoming an administrator, these workers typically get work experience in a related field. Firms with large databases may prefer applicants who have a master's degree focusing on data or database management.

Network administrators usually need a bachelor's degree in a computer or information science field. Companies may require their network and computer systems administrators to be certified in the product they use, for example Microsoft or Cisco. Administrators need to keep up with the latest developments and many continue to take courses throughout their careers. Some businesses require that an administrator get a master's degree.

Systems analysts can advance to project manager and lead a team of analysts and can eventually become IT directors or chief technology officers. Most computer systems analysts have a bachelor's degree. Analysts also are heavily involved in the business side of a company, so it may be helpful to take business courses or major in management information systems.

Information security analysts usually need at least a bachelor's degree, but some employers prefer applicants who have an MBA in information systems. Many analysts have experience in an information technology department, often as a network or systems administrator.

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CAREER SERVICES | NATURE OF THE WORK

- **Computer and information systems managers** (often called IT managers or IT project managers) plan, coordinate, and direct computer-related activities in an organization. They help determine the information technology goals of an organization and are responsible for implementing computer systems to meet those goals.

- **Computer programmers** write code to create software programs. They turn the program designs created by software developers and engineers into instructions that a computer can follow.

- **Database administrators** use specialized software to store and organize data, such as financial information and customer shipping records. Database administrators, often called DBAs, make sure that data analysts can easily use the database to find the information they need and that the system performs as it should. They also ensure the integrity of the database, guaranteeing that the data stored in it come from reliable sources and often plan security measures, making sure that data are secure from unauthorized access.

- **Network and computer systems administrators** are responsible for the day-to-day operation of computer networks. They organize, install, and support an organization's computer systems.

- **Computer systems analysts** study an organization's current computer systems and procedures and design information systems solutions to help the organization operate more efficiently and effectively. They bring business and IT together by understanding the needs and limitations of both.

- **Information security analysts** plan and carry out security measures to protect an organization's computer networks and systems. Their responsibilities are continually expanding as the number of cyber-attacks increase.

OPPORTUNITIES FOR EMPLOYMENT

- **Employment in computer and information technology** occupations is projected to grow 13 percent from 2020 to 2030, faster than the average for all occupations. These occupations are projected to add about 531,200 new jobs. Demand for these workers will stem from greater emphasis on cloud computing, the collection and storage of big data, and information security.

- **Employment of network and computer systems administrators** is projected to grow 5 percent from 2020 to 2030, slower than the average for all occupations. Demand for information technology (IT) workers is high and should continue to grow as firms invest in newer, faster technology and mobile networks.

- **Employment of computer support specialists** is projected to grow 9 percent from 2020 to 2030, about as fast as the average for all occupations. More support services will be needed as organizations upgrade their computer equipment and software.

- **Employment of information security analysts** is projected to grow 33 percent from 2020 to 2030, much faster than the average for all occupations. Demand for information security analysts is expected to be very high, as these analysts will be needed to create innovative solutions to prevent hackers from stealing critical information or causing problems for computer networks.

SALARY EXPECTATIONS

The median starting salary for graduates with a Bachelor's degree Information Sciences and Systems was $69,000*.

*Source: Salary Survey, Winter 2021, National Association of Colleges and Employers.

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CAREER SERVICES | TITLES AND SKILLS

CERTIFICATIONS

- Java
- Cisco
- C++
- Microsoft Certified Solution Developers

SOURCES OF ADDITIONAL INFORMATION

- IEEE Computer Society - http://www.computer.org/
- Association for Computing Machinery - http://www.acm.org/
- Computing Research Association - http://www.cra.org/

JOB TITLES

- Computer and Information Research Scientists
- Computer Network Architects
- Technology Managers
- Computer Analysts
- Network Administrators
- Database Administrators
- Computer Programmers
- Computer Systems Analysts
- Project Managers
- Information Security Analysts

REQUIRED SKILLS

- Accuracy
- Adaptability
- Analytical
- Communication
- Decision Making
- Detail-Oriented
- Independent
- Leadership
- Logical
- Organizational
- Team player
- Technical