

# Master of Science in Information Systems

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## Career directions

The Master of Science in Information Systems (MSIS) degree prepares you for a leadership career in Information Systems. The job of the information-systems professional is to understand and improve the ways organizations derive value from information. Information-systems professionals vary widely—from technical practitioners, who deploy new systems, to business leaders, such as the Chief Information Officers (CIOs) who devise new ways to exploit information assets to gain a competitive advantage in their industries.

The MSIS degree can ready you for a career path that suits your passions. If you are interested in technical practice, you can focus on areas such as software, networking, security, and databases. If you are interested in information strategy, you can learn how to enhance competitiveness through smarter and faster decision making, improved productivity, and process integration with business partners. You also have career options in the middle: systems analysts work with users to define their requirements, and work with technical people to design and implement systems that will meet those needs. Because information is the fuel that runs the modern enterprise, well-trained information-systems professionals are always in high demand.

Technical careers in Information Systems often lead to job titles such as System Architect, Web Developer, Data Security Specialist, Digital Forensic Analyst, Network Administrator, or Chief Staff Scientist. Strategic careers in information systems may lead to titles such as Systems Analyst, Chief Information Officer, Supply Chain Manager, Chief Security Officer, or Chief Technology Officer.

The MSIS is an internationally recognized credential. The SDSU degree program is modeled after a curriculum jointly published by the Association for Computing Machinery (ACM) and the Association for Information Systems (AIS).

## Flexible Curriculum

The MSIS program is designed to be flexible, so you can learn what you need to build the career you want. Your program of study can be adjusted to account for your background and experience. The curriculum includes a “career track” element—an opportunity to customize your course work to align with your career goals. There are several “career track” options suggested below, but if you have a particular technology or domain interest you can work with your academic adviser to define a customized career-track emphasis. This can include courses from the College of Business Administration or other Colleges across the SDSU campus.

## Program Structure

### Program preparation

To qualify for admission to the MSIS program, you must complete each of the following prerequisite courses. If you have professional expertise or equivalent preparation, you may waive these courses with the approval of your adviser.

COURSE NUMBER	COURSE TITLE	UNITS
MIS 180	Principles of Information Systems	3
MIS 315	Business Applications Programming	3
BA 650	Financial Reporting and Analysis	3
BA 655	Marketing	3
BA 662	Operations and Supply Chain Management	3

### Courses in the Program

After satisfying the prerequisites, you must complete a graduate program of at least 36 approved units, including at least 27 units in 600- and 700-numbered courses. Up to nine units of coursework may be accepted as transfer credit. Not more than three units of MIS 797 and MIS 798 (special study) may be accepted toward credit for the degree.

### Required Core Courses (24 Units)

The following core courses in the Information Systems Technology area are required:

COURSE NUMBER	COURSE TITLE	UNITS
MIS 686	Database Management Systems	3
MIS 687	Data Communications and Distributed Data Processing	3
MIS 695	Information Systems Development I	3
MIS 697	Information Systems Development II	3
MIS 752	Seminar in Supply Chain Processing and Control	3
IS TECHNOLOGY UNITS:		15

The following core courses in the IS Management area are required:

COURSE NUMBER	COURSE TITLE	UNITS
MIS 688	Information Systems in Organizations	3
MIS 750	Project Management	3
MIS 755	Information Systems Security Management	3
IS MANAGEMENT UNITS:		9

With the approval of your MSIS adviser, you may substitute a different course for a required course after a review of your credentials and experience.

### Career Track Courses (9 Units)

Working with your adviser, you will decide on a career-track interest and design your program of study to include courses relevant to your career objectives. These courses can be from within the College of Business Administration or from other colleges at SDSU. (See the section *Career Tracks* below for a description of several suggested career track options.

### Plan A or Plan B Courses (3 Units)

You must complete either Plan A (thesis option) or Plan B (directed readings and comprehensive examination). You will take one of the following courses, depending on which option you choose. Your adviser will assist you in determining the best choice for you.

PLAN	COURSE NUMBER	COURSE TITLE	UNITS
A	BA 799A	Thesis Research	3
B	MIS 790	Directed Readings in MIS	3
PLAN A OR PLAN B UNITS:			3

### Career-Track Suggestions

The ability to direct your program of study toward an area of interest to you is a key feature of the MSIS program. As noted above, nine units of study are to be chosen based on a career or domain interest that you determine in consultation with your adviser.

The following suggested career tracks are provided to assist you in planning your program of study. You may follow one of these tracks or create a program tailored to your own objectives.

#### Business Analytics

A business-analytics career track is focused on leveraging the information and knowledge assets of an organization to make better decisions and uncovering hidden or unnoticed relationships that can lead to a more effective competitive strategy for the firm.

#### Information Security

A career in information security focuses on analyzing threat models, deploying appropriate countermeasures, and implementing controls to ensure end-to-end oversight of the organizations critical information and knowledge assets.

#### Supply Chain and Operations

The supply-chain and operations-management career track focuses on the management activities of designing, planning, executing, controlling of supply chain and operational activities to sustain an organization's competitive position. The goal is to synchronize supply and demand decisions strategically to serve the global marketplace.

## Enterprise Systems

Enterprise application architects construct models of an organization's information assets and assign functional capabilities to various hardware, software, and human assets. The focus is on developing a long-term strategy for integrating legacy systems with new technologies and capturing business processes in a maintainable and scalable structure. Enterprise resource planning (ERP) systems frequently form the nucleus of the modern enterprise architecture.

## Project Management

Project managers plan and oversee the development, deployment and adoption of information systems in the enterprise. They are the principal point of responsibility for ensuring that the firm's IS investments are delivered on time and within budget.

## Geographic Information Systems

A specialist in GIS makes use of statistics, database technology, computer graphics, and cartography to create systems that store, manage and facilitate analysis of geographically referenced data. Such systems are widespread for use in marketing, resource management, logistics, research, and many other functions that rely on geographically distinguished information.

## Health Information Systems

The health-care industry is undergoing a transformation toward integrated and automated medical records and operations. A career track in HIS focuses on the technical, legal, and ethical aspects of health-care information storage and delivery systems.

## E-Government

A career track in e-government issues focuses on the unique challenges faced by federal, state and local governments in integrating and automating their operations. Such systems facilitate government-to-citizen, government-to-business, government-to-employee, and government-to-government transactions.

## IT Auditing

An career in IT auditing involves examining and reinforcing the management controls within an organization's information infrastructure with the goal of safeguarding assets, maintaining data integrity, and ensuring the integrity of the knowledge base that guides the strategic direction of the enterprise.

## Advising

The advisers for the MSIS program are:

- Prof. Alexis Koster, Ph.D. Email: [alexis.koster@sdsu.edu](mailto:alexis.koster@sdsu.edu) Telephone: (619) 594-1020
- Prof. Bongsik Shin, Ph.D. Email: [bshin@mail.sdsu.edu](mailto:bshin@mail.sdsu.edu) Telephone: (619) 594-2133