

DEPARTMENT OF COMPUTER INFORMATION SYSTEMS

Graduates of the Computer Information Systems program are business problem solvers who assist firms to be more competitive via the use of technology. Those who choose the Computer Information Systems major enjoy technology and also enjoy working with people.

The department prides itself on excellence in teaching, and fosters a supportive learning environment that provides students with the opportunity to develop the expertise required to distinguish themselves both academically and professionally. Career tracks of program graduates include high-demand positions in data management, network management, information systems security administration, systems analysis, web development and mobile applications support.

The demand for CIS graduates over the next decade is outstanding with job growth projected to increase rapidly. Currently there are more career openings for CIS majors than there are graduates available to fill the positions; consequently, starting salaries are among the highest of all undergraduate business majors. All CIS students who qualify complete internships, many resulting in offers of full-time employment upon graduation.

- Bachelor of Science in Computer Information Systems (<http://catalog.qu.edu/business/computer-information-systems/computer-information-systems-bs>)
- Bachelor of Science in Computer Information Systems and Accounting (<http://catalog.qu.edu/business/computer-information-systems/computer-information-systems-accounting-bs>)
- Master of Science in Business Analytics (<http://catalog.qu.edu/graduate-studies/business/business-analytics-ms>)
- Minor in Computer Information Systems (<http://catalog.qu.edu/business/computer-information-systems/computer-information-systems-minor>)
- Minor in Business Analytics (<http://catalog.qu.edu/business/computer-information-systems/business-analytics-minor>)

Computer Information Systems (CIS)

CIS 101. Introduction to Information Systems. 3 Credits.

This course introduces students to the analysis, design and development of information systems using the example of a mobile application. In a semester-long, team-based project, students develop a prototype and business case for a mobile application that addresses a defined business need. Students learn how information systems are developed while simultaneously learning how to gather, analyze and present data for decision-making in a business environment.

Offered: Every year, All

CIS 125. Systems Analysis and Design. 3 Credits.

This course provides an introduction to the phased, problem-solving approach commonly used by organizations to examine and improve their information systems. Topics include analysis of a business problem or opportunity; determining what role, if any, computer-based technologies can play in addressing the business need; articulating the business requirements for the technology-based solution; specifying alternative approaches to acquiring the technology capabilities needed to address the business requirements; and specifying the detailed requirements for the information systems solution.

Prerequisites: Take CIS 101.

Offered: Every year, Fall

CIS 245. Object-Oriented Programming. 3 Credits.

This course provides an introduction to object-oriented programming using a high-level programming language such as Python. The course covers the basics of how one constructs a program from a series of simple instructions. Basic features of functional and object-oriented programming are covered. Common programming techniques necessary to create simple but useful applications are explained.

Prerequisites: Take CIS 101.

Offered: Every year, Spring

CIS 265. Mobile Application Development. 3 Credits.

This project-based course covers the use of mobile applications in business and the issues involved in mobile application development. It also explores the principles and tools involved in the design and construction of applications for mobile devices.

Prerequisites: Take CIS 101.

Offered: Every other year, Spring

CIS 267. HTML and CSS. 3 Credits.

This course introduces students to the fundamentals of HTML and CSS, which are two of the core technologies used to build websites. In this project-based course, students learn how to build modern websites using professional tools and workflows. Topics include design principles, responsive layouts, interactivity, video and audio, accessibility, performance optimization and version control systems.

Prerequisites: Take CIS 101.

Offered: Every other year, Fall

CIS 299. Independent Study. 1-6 Credits.

CIS 301. Enterprise Systems. 3 Credits.

An Enterprise Resource Planning (ERP) system is software that runs all areas of an organization including accounting and finance, human resources (HR), sales and distribution, production, purchasing and inventory. ERP systems are cross-functional, process-centered, and based on industry best practices. This course covers both ERP theory and practice; the course content includes the evolution of ERP systems, business process reengineering, process mapping, the ERP life cycle, ERP functionality, ERP add-ons and security and risk management issues.

Prerequisites: Take CIS 101.

Offered: Every year, Spring

CIS 330. Networking and Data Communications. 3 Credits.

This course covers topics related to systems architecture and communication networks, focusing on local and wide area networks, internetworking, network security and business continuity. Students gain the knowledge and skills needed for communicating effectively with professionals whose special focus is on networks, hardware and systems software technology and for designing organizational processes and software solutions that require in-depth understanding of the IT infrastructure capabilities and limitations.

Prerequisites: Take CIS 245.

Offered: As needed

CIS 350. Advanced Excel Programming (AC 350). 3 Credits.

This course utilizes advanced topics in Excel to solve a range of complex business problems. Topics include: spreadsheet design, the use of complex formulas, functions, list and data management, macros and Visual Basic for Applications.

Prerequisites: Take CIS 101.

Offered: Every year, All

CIS 351. Database Programming and Design. 3 Credits.

This course presents the use of database architecture and programming as a tool for developing integrated solutions for the information requirements of a modern business environment. Students work to identify business solutions by identifying the appropriate database design, and to understand how that design supports the business requirements. Students learn how to design, build and query databases using Microsoft SQL Server.

Offered: Every year, Fall

CIS 355. Data Visualization. 3 Credits.

This course provides an introduction as well as hands-on experience in the field of data visualization. Students learn basic visualization design and evaluation principles to create meaningful displays of quantitative and qualitative data. They also learn techniques for visualizing multivariate, temporal, text-based, geospatial, hierarchical and network/graph-based data.

Prerequisites: Take CIS 101.

Offered: Every year, Spring

CIS 381. Web Development. 3 Credits.

This course introduces students to the development of modern web applications. In this project-based course, students learn how to develop web applications that adhere to industry best practices and leverage the latest tools and technologies. Equal emphasis is placed on front end and back end aspects of web development. Topics include architectural patterns, database integration, authentication and authorization, security and web services.

Prerequisites: Take CIS 101.

Offered: Every other year, Fall

CIS 400. Emerging Topics. 3 Credits.

This course introduces students to new and innovative IS technologies and examines how these powerful systems have fundamentally reshaped modern organizations along with our society. Using online collaborative technologies that were developed in the context of social networking and online communities, corporations are reengineering both internal business processes and those related to customers, suppliers and business partners. Developing innovative ways to communicate and collaborate can lead to new business opportunities and new efficiencies. This course investigates the technologies, methods and practices of developing new innovations such as online communities, and how this knowledge and these skills are applied to re-engineer business processes.

Prerequisites: Take CIS 125 CIS 301.

Offered: As needed

CIS 411. Information Systems Security. 3 Credits.

This course introduces students to the fundamental principles and topics of information technology security and risk management at the organizational level. Students learn critical security principles that enable them to plan, develop and perform security tasks. The course addresses hardware, software, processes, communications, applications and policies and procedures with respect to organizational IT security and risk management.

Offered: As needed

CIS 440. IT Project Management. 3 Credits.

This course covers a methodology for initiating, planning, executing, controlling and closing IT projects, and covering processes, methods, techniques and tools that organizations use to manage their information system projects. It assumes that IT project management is a complex, team-based activity where various types of technologies (including both project management and group collaboration software) are an inherent part of the project management process.

Prerequisites: Take CIS 125 CIS 301.

Offered: Every year, Fall

CIS 484. Information Systems Internship. 3 Credits.

Students gain experience by employing their skills in a professional setting under practicing professionals. This internship involves in-depth work related to user-defined information needs and is usually completed in the summer between the student's junior and senior years. Students must obtain approval and register prior to starting the work experience. Permission of department chair required.

Prerequisites: Take CIS 301.

Offered: Every year, All

CIS 488. Independent Study. 1-6 Credits.**CIS 490. Computer Information Systems Capstone. 3 Credits.**

Students employ skills learned in all other CIS course work, and are required to deliver a project that may encompass project management, systems analysis and design, enterprise systems, database management systems and programming. Students are responsible for managing the entire project from conceptual design to final deliverable.

Prerequisites: Take CIS 245 CIS 351.

Offered: Every year, Spring

CIS 600. Information Systems Strategy. 3 Credits.

Students develop the ability to analyze and identify opportunities to improve the effectiveness of organizations through the use of appropriate information technologies. Technologies that influence organizational strategies, structure, risks and processes are emphasized. Ethical, global and security issues also are covered.

Offered: Every year, All

CIS 620. Data Management. 3 Credits.

The concepts, principles, issues and techniques for managing corporate data resources are covered, including techniques for managing the design and development of large database systems. Data warehousing, data mining and database administration are emphasized. Students engage in hands-on-learning and work individually or in teams to complete a real-world project using contemporary data management tools and techniques.

Offered: Every year, Fall and Spring

CIS 627. Data Warehousing. 3 Credits.

This course focuses on the design and implementation of data warehouses, identifying key architecture differences between data warehouses and transactional databases. It also focuses on the interface to data warehouses to better understand how large amounts of information are used to enable organizations to make better decisions.

Prerequisites: Take CIS 620.

Offered: Every year, Fall and Spring

CIS 628. Data Mining. 3 Credits.

This course focuses on the application of common data mining techniques. Students focus on developing business solutions by applying techniques such as market basket analysis, association rules, cluster analysis and time series.

Prerequisites: Take BAN 615.

Offered: Every year, Fall and Spring

CIS 630. Business Design and Object-oriented Analysis. 3 Credits.

This course considers systems-development methods, analysis and design techniques with a focus on object-oriented analysis and design.

The application of systems analysis and design concepts using current tools, techniques and approaches is covered. Students engage in hands-on learning and work in teams to complete a real-world project using contemporary analysis and design methodologies and tools.

Offered: Every year, Summer

CIS 688. Computer Information Systems Independent Study. 3 Credits.

Offered: Every year, All

CIS 689. Computer Information Systems Independent Study. 1-6 Credits.

Offered: Every year, All

CIS 690. Project Management. 3 Credits.

This course develops a foundation of concepts and solutions required for successful completion of a project. Topics include planning, scheduling, controlling, resource allocation and performance measurement.

Offered: Every other year