**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 other year, Fall

**CIS 225. 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 255. 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.

Offered: Every year, Spring
UC: Breadth Elective

**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: As needed, 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.
Offered: As needed

**CIS 300. Special Topics.** 3 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 350. Data Analysis with Excel (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.

Offered: Every year, All
UC: Breadth Elective

**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 360. Programming in Excel.** 3 Credits.
This course teaches students how to create Excel macros in Visual Basic for Applications (VBA). In the course students will learn to create hotkeys, how to compile code, loops, and logic statements. No prior experience in coding is needed.

Prerequisites: Take CIS 245
Offered: As needed

**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 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.

Prerequisites: Take CIS 101.
Offered: As needed
CIS 440. IT Project Management. 3 Credits.
This course evaluates the principles of Agile Project Management, using the scrum framework. The roles, events, artifacts, gathering requirements, estimation, values, and theory from the scrum framework are evaluated. In addition, differences between agile and traditional project management methods of software development are described. Students work on a development project to get a hands-on experience of working on a scrum team.
Prerequisites: Take CIS 125 or CIS 225.
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 245.
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 coursework, 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 CIS 440.
Offered: Every year, Spring