

# COMPUTER INFORMATION SYSTEMS (CIS)

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## Courses and Descriptions

### CIS 185 Information Systems Essentials 3 Credits

This course provides students with a conceptual understanding and hands-on practice with spreadsheets. At the completion of this course students will be able to apply the appropriate information systems technology tools within spreadsheets to a variety of quantitative data-centric analytic activities. This course assumes you have a basic knowledge of Microsoft Windows, Word, Excel, and Web browsers.

### CIS 200 Application Development with JavaScript 3 Credits

In the early 1990s, Tim Berners-Lee created a set of technologies to allow information sharing at the CERN particle accelerator in Europe. These technologies dramatically changed the face of computing and became what we know today as the Web. Understanding how to develop and manage applications for the Web is a requirement for the information system professional. Because of the ease of development, deployment, maintenance and general scalability of Web applications, this approach to building and managing applications has become the de facto standard for business application development. This class will examine Web application development in detail. Through a combination of lecture and labs, students will learn the architecture of Web applications, how to develop Web pages using HTML and CCS, how to control user interaction with those pages using the JavaScript programming language. The programming basics of variable declaration and usage, program flow of control, function declaration and calling, and object usage and declaration will also be shown. The use of the JQuery Javascript library to ease the development of Web pages will also be shown.

### CIS 220 Application Development with JavaScript and Python 3 Credits

In the early 1990s, a set of network technologies was combined to create a platform for application development. These technologies are now referred to as the Web. Because of the ease of development, deployment, maintenance, and scalability of Web applications, this approach to building and managing applications has become the de facto standard for business application development. Understanding how to develop and manage applications for the Web is vital for information systems professionals. This class will examine Web application development in detail. Through a combination of lecture and labs, students will learn the architecture of Web applications, how to develop Web pages using the Hypertext Markup Language (HTML) and Cascading Style Sheets (CSS), and managing user interaction in those pages using the JavaScript programming language. The process of creating dynamic web pages using the PHP programming language on the Web server will also be taught.

**Prerequisite(s):** CIS 200.

### CIS 240 Cloud Computing Infrastructure 3 Credits

Cloud computing represents a form of utilizing hardware resources in a way which allows a business to be more responsive to a changing environment. Computer networks are a critical component of cloud computing. This class will cover the components of a computer network, the process of configuring networks, and the creation and provisioning a cloud computing environment. Students will also learn the process of computer operating system installation, configuration and maintenance. Virtualization, the process of creating multiple operating system environments on a single piece of hardware will also be covered using both the Windows and Linux operating systems.

**Prerequisite(s):** CIS 185.

### CIS 255 Intro to Game Design & Development 3 Credits

The basic concepts, logic, techniques, tools, and vocabulary associated with interactive, digital game and simulation development will be explored through a combination of lectures, discussions, and hands-on learning. Knowledge and skills derived can be applied to a wide variety of business and other organizational settings globally for interactive simulations, games, and education.

### CIS 260 Business Graphics 3 Credits

Basic color theory, typography, and page/slide layout are presented. Students utilize presentation, word processing and photo editing applications to create and edit various documents through hands-on labs and projects.

**Prerequisite(s):** CIS 185 or permission of instructor.

### CIS 270 Computer Networking 3 Credits

This course provides an introduction to business data communications and networking. The Internet and OSI models are discussed. Network technologies include local area networks, backbone, wide area networks, and the Internet. Introduction to network design, security, and network management are also provided.

**Prerequisite(s):** CIS 185.

### CIS 300 Programming with Java 3 Credits

Students will learn the basic concepts of object-oriented programming as contrasted with traditionally structured programming and will develop applications using the Java programming language.

**Prerequisite(s):** CIS 200.

### CIS 309 Data Structures & Cmptr Archit 3 Credits

An introduction to linked lists, stacks, queues, trees, pointers, and sorting and searching algorithms. Students will learn the technical details of data storage and manipulation along with the concepts of program execution, and will use tools such as hex-editors and debuggers.

**Prerequisite(s):** CIS 185 or permission of instructor.

### CIS 315 Integrated Business with SAP 3 Credits

This course provides an introduction to enterprise resource planning (ERP) systems and addresses how integrated information systems improve business operations. Students will learn about functional business areas and business processes, and understand the problems inherent in un-integrated enterprise information systems. Using SAP software and case studies, students will learn how ERP systems are being used to facilitate integrated, real-time management decision making.

**Prerequisite(s):** CIS 185 and ACC 210.

**CIS 319 Computer Forensics 3 Credits**

Students will use computers to obtain and analyze evidence found on storage devices such as those confiscated under warrant, and learn how to trace digital activities. Criminal and investigative procedures will be explored in depth.

**Prerequisite(s):** CIS 185.

**CIS 320 Cloud Computing Administration 3 Credits**

Students will learn the process of creating or provisioning a cloud computing environment. Content will include the provisioning of operating system resources in a cloud environment, operating system installation, configuration and maintenance. Virtualization, the process of creating multiple operating system environments on a single piece of hardware will be covered in some detail. Troubleshooting problems in the virtualization environment and in the operating system environment will also be covered. Hands-on labs will be used throughout. Both Windows and Linux operating systems will be used.

**Prerequisites:** CIS 185.

**CIS 325 User Experience Design 3 Credits**

This course focuses on the critical role user experience plays in today's technology-driven business world. While technology advances make the design of functionality more readily in interactive products, usability plays a critical role in determining their success in the real world. Increasingly, business leaders realize the need to consider the emotional and social experiences as well as functional requirements and the steps users take to complete a task. This course explores User Experience Design (UXD), and its strategic importance in creating competitive advantage. Students will be able to discover, define, develop, and deliver a complete user experience. They will understand the role of usability and design principles, build innovative and pleasurable user experience prototypes, and validate them to achieve human, social, and business goals.

**CIS 330 Database Systems 3 Credits**

This course involves the study of computer databases. Major topics include relational databases, use of the structured query language (SQL) to query relational databases, and design and maintenance of relational databases.

**Prerequisite(s):** CIS 185.

**CIS 340 Electronic Commerce 3 Credits**

Students will learn about the most current e-commerce technologies and business models through readings, case studies, and hands-on projects. Students will gain experience using business data analytics tools to understand and evaluate the value of data that is generated and collected from various e-commerce platforms on the Internet.

**CIS 345 Enterprise Security 3 Credits**

This course introduces students to cybersecurity, the process of securing computers and the information they store. Coverage includes security attacks and attack prevention and mediation, security firewalls, PC and server security, authentication methods and procedures, and network security. Through lecture and hands-on labs students will learn how computer systems can be attacked and how computer professionals can manage the risks and potential damage from these attacks.

**CIS 350 Practical Business Analytics with Excel and R 3 Credits**

This is a required course for the Business Analytics major/minor. This course will provide the student with an opportunity to gain proficiency in analyzing and visualizing data using both Excel and R. The learning experience includes not only classic data tools, such as PivotTables, VLOOKUP, and data visualization, but also more advanced data tools such as descriptive statistics, inferential statistics, predictive analytics using R, and optimization using Excel Solver.

**Prerequisite(s):** BDA 201.

**CIS 360 Data Mining 3 Credits**

This course deals with modern technologies for data analysis. Hands-on exercises for data retrieval, data visualization and predictive analytics will be carried out using up-to-date methodologies and software tools. The full data mining life cycle will be covered from recognizing business problems and opportunities amenable to data mining analysis through deploying and monitoring solutions.

**Prerequisite(s):** CIS 185 with a minimum grade of D .

**CIS 370 Systems Analysis and Design Project 3 Credits**

Topics include modeling techniques and methodologies to address the planning, analysis, design, and implementation of high quality systems, delivered on time and within budget. Using rapid application development tools, students will also construct an operational system within the span of a single semester. Issues and tools related to the management of project teams are also discussed.

**Prerequisite(s):** CIS 330.

**CIS 375 Business Process Design for a Global Economy 3 Credits**

The course is aimed at generating a comprehensive understanding of the emergent domain of global business process outsourcing. Various referred to as knowledge process outsourcing, IT-enabled services outsourcing, and business services outsourcing, the industry has seen enormous growth over the last decade and continues to grow. India commands the single largest share of this market but South Africa, Eastern Europe, Philippines, Morocco and Egypt have all emerged as other contenders in this global sector. The course is divided into four modules: the political economy of global outsourcing, process modeling, outsourcing management, and industry analysis. Please note: Students will not receive credit for both CIS 375 and GSC 375.

**Prerequisite(s):** junior standing.

**CIS 377 Risk Management and Compliance for Information Security 3 Credits**

This course will use a holistic approach to examine the management of information security risk in relation to the strategic goals of the business organization. Students taking this course will learn to identify threats, threat agents, potential exploits and the information assets which will be impacted by those exploits. The risk management process will specifically examine threat agents, and the amplifiers, catalysts, and inhibitors to those threats. Using a process which assigns a weight to various threats, and a comprehensive risk analysis model will be developed.

**CIS 385 Management Information Systems 3 Credits**

This course will enhance students' digital dexterity and familiarity with existing and emerging information technologies, emphasizing skills of abstraction in relation to digital strategy and organizational change, innovation, analytics, and ethics. This course will also provide hands-on experience with at least one essential business technology. At the completion of the course, students will have an understanding of the business-related, policy, societal, and ethical implications associated with modern information systems.

**Prerequisite(s):** CIS 185 and junior or senior standing.

**CIS 388 Design Thinking 3 Credits**

This undergraduate course on Design Thinking provides students with a framework for dealing with unstructured problems to create innovative business solutions. Students in this course will learn about the complex and iterative process of design thinking and its several phases, including problem finding, observation, visualization and sense making, ideation, prototyping and testing, and explore the value of design thinking for creating business solutions with lasting impact. Students who have earned credits for CIS 388 or equivalent cannot take PMBA 8352 for credit.

**Prerequisite(s):** JR/SR, 54+ credits, or POI.

**CIS 390 Project Management 3 Credits**

This course introduces students to general project management, the process of organizing resources to achieve business goals. Topics include the identification, approval, analysis, and general management of complex business projects. Project management tools, reports, techniques, and approaches will be covered.

**Prerequisite(s):** CIS 185.

**CIS 395 Ethical & Global Impacts of IT 3 Credits**

This course aims to help students realize the implications stemming from their use of technology as consumers, private citizens, and future employees, as well as those arising from the increasing use of data collection, automation, and artificial intelligence technologies by for-profit and governmental entities. Ethical, economic, social, political, and ecological impacts of technology are discussed.

**Prerequisite(s):** Junior or Senior standing.

**CIS 399 The Co-Operative Experience 6 Credits**

The co-op program provides students with an opportunity to work full-time in a company and apply what they have learned in their computer information systems and other business classes. It also enhances students' employment opportunities since many employers use a co-op program as a first step before they hire full-time employees. Eligible students include junior computer information systems majors with a minimum overall GPA of 3.0, and a minimum GPA of 3.0 in any computer information systems coursework completed prior to submission of the co-op application. Three of the co-op credits can be applied toward the computer information systems major, and three credits can be applied toward business or free elective requirements. Grading is on a pass/fail basis.

**Prerequisite(s):** Completion of two of the three courses: CIS 200, CIS 270, and CIS330.

**CIS 401 Artificial Intelligence for Business 3 Credits**

Artificial Intelligence (AI) is the broadest term used to classify machines that mimic human intelligence. It is used to predict, automate, and optimize tasks that humans have historically done, such as speech and facial recognition, decision-making, and translation (IBM.com). Undoubtedly, AI is one of the most transformative and disruptive technologies of our age, which has already had a direct impact on the value chain. Private investment in AI has significantly increased in recent years, more than doubling from \$42.2 billion in 2020 to \$93.5 billion in 2021 (AI Index report, 2022). A recent MIT paper predicts AI will cause significant innovations in the next ten years, creating many new jobs. However, there is currently a significant AI talent shortage in the U.S. and worldwide, and the AI skills gap is expected to widen in the future. Therefore, pursuing an AI/machine learning job is a solid choice specifically for recent university graduates to secure a high-paying position that will be in demand for decades. This course was designed for students within various disciplines, such as Information Systems, Business Analytics, Marketing, Finance, and Accounting, to learn the basics of Artificial Intelligence (AI) and how AI is applied to business. In addition, students learn how to work with SAS Viya, the SAS platform for AI and Machine Learning. This course could be the students' first yet most important step in preparing for the AI job market.

**CIS 410 Selected Topics in Information Systems 3 Credits**

Information and communication technologies are evolving rapidly and continually. The Special Topics course facilitates the exploration of a selected topic (or combination of topics) that represents a recent technological advance with important and direct implications in the field of computer information systems. Current research, readings, lectures, discussions and/or hands-on computer experience or other appropriate measures will be employed to stimulate student learning.

**Prerequisite(s):** to be determined by instructor.

**CIS 430 Enterprise Integration 3 Credits**

The major focus of this course includes the forces driving enterprise integration as well as the management decisions associated with the design and implementation of enterprise systems. Students will use SAP ERP extensively to configure, build, test, and implement an enterprise system for a real business environment from the ground up.

**Prerequisite(s):** CIS 315.

**CIS 490 Independent Study: Research and Creative Expression 1-4 Credits**

Topic to be approved by professor and chairperson. Available for juniors and seniors. No more than 12 credits allowed toward graduation.

**Prerequisite(s):** permission of instructor.

**CIS 491 Computer Information Systems Internship 3 Credits**

This is an honors course that provides the student with approximately two months of supervised employment with participating companies. Students are given a variety of information technology experiences. They are required to complete a term paper and/or to make an oral presentation to the faculty. Grading is on a pass/fail basis.

**Prerequisite(s):** permission of instructor.