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# Computer Information Systems

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### **CIS 204. Computer Information Systems. 3 credits.**

An introduction to computer-based information systems. Emphasis is placed on the role of computers in organizations and society, computer hardware and software, uses of information systems, computer ethics, and collaboration using computers. Students will use typical business applications. This course is designed to fulfill requirements for the General Business minor. Not open to business majors. This course may NOT be substituted for [COB 204](#) by business majors or CIS minors.

### **CIS 221. Principles of Programming. 3 credits.**

Students will be required to solve real-world business problems with computer programming using an Integrated Development Environment (IDE) and event driven logic. Projects will include the use of control structures (selection and iteration), subprocedures and functions as well as file and array processing logic. Not open to students who have taken [CS 139](#) or [CS 149](#) or [ISAT 252](#) with a grade of "C" or better or are taking or have taken [CS 159](#) or [CS 239](#).

### **CIS 301. Operating Systems and Server Administration. 1 credit.**

This is a lab-based course that introduces the student to operating systems and server administration in a business environment. Students will learn the basic functions of an operating system through the hands-on use of Linux and Windows. Additionally, students will acquire hands-on server administration skills in order to better understand the operational and security demands of business applications. *Prerequisites for declared CIS minors: [COB 204](#) and junior or senior standing. Prerequisite or corequisite for CIS majors: [COB 300](#).*

### **CIS 304. Enterprise Architecture. 3 credits.**

This course explores the analysis, design, implementation, evaluation and management of enterprise IT solutions. Emphasis will be placed on planning and modeling the enterprise. Topics include functional modeling, physical architecture design, security planning and recovery issues, project management, emerging technologies, and ethical, financial and global considerations. *Prerequisite or corequisite for CIS majors: [COB 300](#). Prerequisite for declared CIS minors: Junior or senior standing.*

### **CIS 311. Analyzing Data in Organizations. 3 credits.**

This course provides an overview of how to work with databases and other data sources in order to access relevant information in a timely and user-friendly manner. It includes discussions of a variety of data representation types, including relational databases, XML documents and cloud data. Students learn essential database concepts and gain practical experience in querying, reporting, and analyzing data. *Prerequisite: [CIS 204](#) or equivalent knowledge (instructor permission is needed). Open only to Adult Degree Program students.*

### **CIS 312. Systems Planning and Analysis. 3 credits.**

Information systems couple both technical (hardware, software, database, telecom) and socio-organizational (business processes, ethics, knowledge, users, developers) subsystems to create rich and available information for the purpose of optimizing business decisions. This course covers the techniques and common tools employed for planning and analyzing these systems. Emphasis will be placed on the system development life cycle, planning and analysis tools, and professional business writing. *Prerequisite:* [CIS 204](#) or equivalent knowledge (instructor permission is needed). Open only to Adult Degree Program students.

**CIS 313. Designing for the Web. 3 credits.**

This course is an introduction to the design and development of web pages and websites. Major topics to be covered include: Hypertext Markup Language (HTML5), Cascading Style Sheets (CSS), the principles of design for user experience, responsive design and JavaScript. *Prerequisite:* [CIS 204](#) or equivalent knowledge (instructor permission as needed). Open only to Adult Degree Program students.

**CIS 320. Computing and Telecommunications Networks. 3 credits.**

This course focuses on the underlying principles of telecommunications and how these principles are deployed to provide efficient and secure networks for providing voice, data, and video services. Emphasis is placed on understanding basic routing, switching, and data aggregation techniques; information security strategies; and understanding how basic information systems applications utilize telecommunications services. *Prerequisite:* Open to CIS majors and minors with prerequisite or corequisite of [CIS 304](#). Open to ISAT majors with prerequisite of [ISAT 252](#). Open to CS majors with prerequisite of [CS 139](#) or [CS 149](#).

**CIS 330. Database Design and Application. 3 credits.**

A study of the tools and techniques of database analysis and design including the implementation of the design using common database management system models. Not open to students who have taken [CS 474](#). *Prerequisite for CIS majors:* A grade of "C" or better in one of the following: [CIS 139](#), [CIS 149](#), [CIS 221](#) or [ISAT 252](#). *Prerequisite or corequisite:* [COB 300](#). *Prerequisites for CIS minors:* A grade of "C" or better in one of the following: [CIS 139](#), [CIS 149](#), [CIS 221](#) or [ISAT 252](#) and junior or senior standing.

**CIS 331. Intermediate Computer Programming. 3 credits.**

Study of concepts and techniques used in object-oriented programming for business applications including program specification, design, development, testing, implementation and documentation. Topics include: basic programming structures; method, array and memory analysis; object-oriented principles (encapsulation, inheritance, polymorphism); graphical user interface (GUI) design and database connectivity. *Prerequisite or corequisite for CIS majors and minors:* [CIS 330](#).

**CIS 354. Advanced Visual Basic Programming. 3 credits.**

Advanced course in Visual Basic programming. Emphasis will be placed on Object-Oriented programming, sequential and random data files and error trapping. Other topics covered will include data access objects, client server, printing in VB and Crystal Reports. *Prerequisite:* A grade of "C" or better in one of the following: [CIS 221](#), [CS 139](#), [CS 149](#), or [ISAT 252](#). *Prerequisite or corequisite:* [CIS 330](#).

**OM 360. Operations Management. 3 credits.**

An introduction to the operations function in business. Topics include facility design, job analysis and design, forecasting, production planning, quality management,

inventory management, scheduling and project management. *Prerequisites:* [CIS/COB 291](#) and junior standing.

**CIS 361. Computer Information Systems Internship. 0 credits.**

To enable students to gain valuable work experience in a CIS-related field. Requires 300 hours of approved computer information systems work experience. All work sites must be pre-approved. *Prerequisites:* CIS major and [COB 300](#).

**CIS 366. Web Design and Development. 3 credits.**

This course is an introduction to the design and development of web pages and web sites. Major topics to be covered include: Hypertext Markup Language (HTML5), Cascading Style Sheets (CSS), the principles of design for user experience, responsive design, and a programming language for web development. *Prerequisites or corequisites for CIS majors:* A grade of “C” or better in one of the following: [CIS 221](#), [CS 139](#), [CS 149](#) or [ISAT 252](#), and [COB 300](#). *Prerequisites for declared CIS minors:* A grade of “C” or better in one of the following: [CIS 221](#), [CS 139](#), [CS 149](#), or [ISAT 252](#), and junior or senior standing.

**CIS/BSAN 393. Predictive Analytics and Data Mining. 3 credits.**

This course focuses on quantitative techniques and computer applications that allow the extraction of useful, previously unrecognized information from large data sets for predictive purposes. By effectively sifting through databases such as those generated by many businesses, data mining allows the analyst to recognize potentially important patterns and to target business opportunities. *Prerequisites:* Declared BSAN minor, [BSAN 391](#) and [BSAN 392](#).

**CIS 411. Computer Forensics for Business. 3 credits.**

Study of the tools and techniques required to analyze the current and past contents of computer data storage devices. The course will cover the structure and formats of storage devices and the techniques used to manage storage devices and data. It will also include securing of the data and preparation for legal presentation of evidence. Analysis will include the audits of computer activity and audits of operating system logs. *Prerequisites or corequisites:* [CIS 301](#) and junior or senior standing.

**CIS 420. Computer-Based Networking. 3 credits.**

An introduction to computer-based networks that incorporates data, voice and video traffic between computer systems and users. Topics include the theory, design and operation of local area networks, wide area networks and private branch exchange systems. *Prerequisite:* [CIS 320](#).

**CIS 424. Computer Security Management. 3 credits.**

Instruction and discussion in the design, development and implementation of a computer security program including legal and ethical considerations. *Prerequisites:* CIS 304 and a grade of “C” or better in one of the following: [CIS 221](#), [CS 139](#), [CS 149](#) or [ISAT 252](#).

**CIS 425. Defensive Cybersecurity. 3 credits.**

This course introduces the concepts of offensive web security through a series of hands-on labs that are built upon real world examples. Doing so allows students to understand the mechanisms of online attacks and learn how to respond to IT security breaches with counter measures. *Prerequisite or corequisite:* [CIS 320](#) or permission of the instructor.

**CIS 428. Mobile Computing and Security. 3 credits.**

The development of mobile software applications using current environments and frameworks is the primary objective of the class. Several different development and programming environments and platforms will be included as will the actual deployment of the application to a wireless device. An important aspect of the class will be the security implications of deploying mobile devices. *Prerequisites: A grade of "C" or better in one of the following: [CIS 221](#), [CS 139](#), [CS 149](#), or [ISAT 252](#). Prerequisite or corequisite: [CIS 331](#).*

**CIS 434. Information Technology Consulting. 3 credits.**

This course investigates the tools used by and skills necessary for information technology consultants. The class will use a team-oriented project approach. Teams will be assigned professional consulting firms as manager/mentors and will work with their manager/mentor firm to complete projects that cover each phase of the consulting life cycle. *Prerequisite: Permission of the instructor.*

**CIS 454. Systems Analysis and Design. 3 credits.**

An introduction to the techniques of systems analysis and design. Emphasizes concept of system life cycle and importance of users in system design. *Prerequisite: Declared CIS major or minor. Corequisite or prerequisite: [CIS 304](#) and [CIS 330](#).*

**CIS 463. Business Intelligence. 3 credits.**

This course provides a comprehensive discussion of advanced database techniques, data warehousing, online analytical processing (OLAP), data mining, data visualization, decision support systems (DSS), artificial intelligence (AI) methods and other business intelligence (BI) topics. Students gain practical experience using contemporary BI tools and technologies, and apply sound design principles for creating intelligent solutions to realistic business problems. *Prerequisite: Grade of "C" or better in [CIS 330](#).*

**CIS 464. Information Systems Project Management. 3 credits.**

Students will develop knowledge and expertise applying techniques and tools used by systems analysts and project managers to plan and manage information systems implementations. *Prerequisites or corequisites for CIS majors: [COB 300](#), and a grade of "C" or better in one of the following: [CIS 221](#), [CS 139](#), [CS 149](#), or [ISAT 252](#). Prerequisite for declared CIS minors: A grade of "C" or better in one of the following: [CIS 221](#), [CS 139](#), [CS 149](#) or [ISAT 252](#), and junior standing.*

**CIS 466. Advanced Web Development. 3 credits.**

This course provides students with understanding and practical experience in server-side programming issues for Web-enabled database and e-commerce application development. Principal topics include receiving and responding to requests from browsers, connecting to database servers via middleware software, and scripting business rules and application logic on a Web server. E-commerce business issues, security implementations and object-oriented design are also covered. *Prerequisites: [CIS 366](#) and [CIS 330](#) or permission of the instructor.*

**CIS 484. Information Systems Development and Implementation. 3 credits.**

Comprehensive development and implementation of enterprise-level systems using object-oriented methodologies, database driven architectures, systems analysis and design procedures, and project management skills. Topics covered will include advanced programming techniques, database processing, GUI design, object communication and a comprehensive group capstone project. *Prerequisites: [CIS 331](#) with a grade of "C" or better and [CIS 330](#) with a grade of "C" or better. Corequisite: [CIS 454](#).*

**CIS/BSAN 490. Special Studies in Computer Information Systems or Business Analytics.** *1-3 credits.*

An advanced course in information and/or business analytics designed to give qualified students an opportunity to complete independent study under faculty supervision. *Prerequisites: Senior standing, recommendation of the instructor and written approval of the department head prior to registration.*

**CIS 498. Special Topics in Computer Information Systems.** *3 credits.*

An advanced course designed to allow exploration of current topics in computer information systems. Course content will vary. See adviser for current content. *Prerequisite: Permission of the instructor.*

**CIS 499. Honors.** *6 credits.*

Year course. See catalog section "Graduation with Honors."