

CIS - COMPUTER INFORMATION SYSTEMS

CIS 090 2 credit hours (lecture: 2 | lab: 1)

Computers for New Users

Course focuses on introductory computer skills and basic terminology. Content includes starting the computer; desktop configuration; management of files and folders; searching the Internet; send, receive and attach a file to an email; create, format, edit, save, and print documents; create, format, edit, chart, save, and print spreadsheets. Intended for those with little to no experience in operating the hardware and commonly used software applications.

Instruction Type: In-Person

Fee: \$10

CIS 101 3 credit hours (lecture: 3 | lab: 1)

Introduction to Computer Information Systems

Course introduces computers and information systems. Content includes fundamental concepts of hardware and software as applied to computers in a business environment; programming, operating systems, the Internet, data communications, systems development life cycle, and information systems; use of typical software packages including word processing, spreadsheeting, database and presentation graphics. Hands-on experience with personal computers in labs. Intended for those seeking a career as a computer professional, an understanding of the role of Information Systems in the business community, or introductory "end user" computer skills.

Recommended: High school algebra, MAT 070, or equivalent skills.

IAI Major: BUS 902

Instruction Type: In-Person | Online | Hybrid

Fee: \$10

Term Typically Offered: Fall | Spring | Summer

CIS 103 4 credit hours (lecture: 3 | lab: 3)

Computer Software and Concepts

Course introduces business application software and fundamental concepts of computer hardware. Hands-on experience in word processing, spreadsheeting, database development, presentation graphics, digital imaging and photo editing, diagramming software, Windows operating system, computer security, and Internet (Web browsers, email, and Web site development) software. Intended for students seeking careers as Information Technology (IT) professionals or for those needing exposure to various software applications.

Recommended: High school algebra, MAT 070, or equivalent skills.

IAI Major: BUS 902

Instruction Type: In-Person | Online

Fee: \$30

Term Typically Offered: Fall | Spring | Summer

CIS 106 3 credit hours (lecture: 3 | lab: 1)

Foundational AI

This zero-code course introduces fundamental principles, techniques and applications of Artificial Intelligence (AI). Students will explore theoretical foundations of AI and gain practical experience working with different AI systems. They will develop skills necessary to create AI applications for solving problems and improving real-world processes, such as intelligent agent design.

Instruction Type: In-Person | Online | Hybrid

Fee: \$30

Term Typically Offered: Fall | Spring | Summer

CIS 111 2 credit hours (lecture: 2 | lab: 1)

Fundamentals of the Internet

Course focuses on understanding the structure of the Internet, how it works, and issues surrounding its use. Content includes hands-on activities, examination and application of theoretical concepts, as well as use of Internet basics, Web browsers, URLs, Web pages, search engines, navigation tools, transferring files, electronic mail, discussion lists and newsgroup usage, "netiquette," and ethical, legal, security, and societal issues.

Recommended: CIS 101

Instruction Type: In-Person | Online

Fee: \$5

Term Typically Offered: Fall | Spring

CIS 112 3 credit hours (lecture: 3 | lab: 1)

AI Ethics

Course introduces ethical and legal aspects relevant to the Artificial Intelligence (AI) industry. Students will examine the implications of policies surrounding AI technologies and become aware of the ethics, moral principles and accountability standards in the development of AI tools and their uses.

Prerequisite: Pending ICCB approval.

Instruction Type: In-Person | Online | Hybrid

Term Typically Offered: Fall | Spring | Summer

CIS 113 3 credit hours (lecture: 3 | lab: 1)

Introduction to Programming using Visual Basic .NET

Course introduces programming concepts using hierarchy charts, program flowcharts, pseudocode, and the Visual Basic .NET programming language to solve business-related problems. Content includes fundamentals of structured programming, arithmetic calculations, decision making, looping, data input and output, numeric and string variables, functions and procedures, arrays, file creation, data retrieval, and developing and debugging Visual Basic programs. Object-oriented theory and terminology will be introduced.

Recommended: CIS 101 or CIS 103 or comparable computer knowledge and one year of high school algebra or equivalent.

Instruction Type: In-Person | Online

Fee: \$10

CIS 116 2 credit hours (lecture: 2 | lab: 1)

Introduction to the MS-Windows Operating System

Course presents theoretical and hands-on instruction using the Microsoft Windows operating system environment. Content includes customizing the environment, optimizing performance, managing file systems, optimizing disks, performing file and folder operations, evaluating system performance, exploring the Windows registry, using troubleshooting tools, enhancing the computer's security, and evaluating installation issues.

Recommended: CIS 101 or CIS 103 or comparable experience.

Instruction Type: In-Person | Online

Fee: \$5

CIS 118 2 credit hours (lecture: 2 | lab: 0)

Linux Operating System

Course teaches theoretical and hands-on instruction using the LINUX operating system environment. Content includes basic LINUX operating system concepts, terminology, file management, general utility commands, command processor (shells), and editors.

Recommended: CIS 101 or CIS 103 or comparable computer experience.

Instruction Type: In-Person | Online

Term Typically Offered: Fall | Spring

<p>CIS 119 3 credit hours (lecture: 3 lab: 1) Prompt Engineering Course introduces AI language models. Students will examine patterns and approaches for writing effective prompts for large language models utilized in various industrial sectors. Primary focus will be placed on analysis, design, and evaluation of different prompt systems, including their purpose, benefits, and limitations. Students will acquire knowledge and skills necessary to generate new content, including text, code, artwork, video, and more. By the conclusion of the course, they will be prepared for potential careers as prompt engineers and related occupations in Generative AI. Note: Pending ICCB approval. <i>Instruction Type: In-Person Online Hybrid</i> Fee: \$30 <i>Term Typically Offered: Fall Spring Summer</i></p>	<p>CIS 145 4 credit hours (lecture: 4 lab: 1) Database Fundamentals I Course provides a foundation in the administrative tasks performed by a database administrator. Topics include Oracle database architecture and how each component functions and interacts. Students will learn how to design, develop, install, maintain, manage, and troubleshoot an Oracle database. Performance monitoring, database security, user management, and backup/recovery techniques will be discussed. This class prepares the student for the Oracle Database Administrator Certified Associate exam. Recommended: CIS 143 or comparable knowledge. <i>Instruction Type: In-Person Online Hybrid</i> Fee: \$40 <i>Term Typically Offered: Fall</i></p>
<p>CIS 131 4 credit hours (lecture: 4 lab: 1) Web Page Development Course introduces theoretical and hands-on instruction on the processes needed to create customized and interactive Web pages using HTML and Cascading Style Sheets (CSS). Content includes commands (tags) to create, format, and link documents; tables, graphics, styles, forms, multimedia (audio, video), navigation bar, introduction to scripting, and other features of a Web page and guidelines for designing effective Web pages and Web sites. Recommended: CIS 111 or concurrent enrollment in CIS 111 and ability to manage files and folders using Windows OR consent of instructor or Program Coordinator <i>Instruction Type: In-Person Online</i> Fee: \$5 <i>Term Typically Offered: Fall Spring Summer</i></p>	<p>CIS 148 3 credit hours (lecture: 3 lab: 1) Introduction to Database Driven Web Sites Course provides a general introduction to the basic framework of a database-driven web site. Content includes sample databases and a popular, industry standard software tool for creating site definitions; and to plan, develop, and implement a web database application. Recommended: CAB 170 or equivalent knowledge. <i>Instruction Type: In-Person Online</i> Fee: \$10 <i>Term Typically Offered: Fall</i></p>
<p>CIS 136 3 credit hours (lecture: 3 lab: 1) Project Management Fundamentals Using Agile Principles Course introduces principles of agile project management in software development, from the initial stages to completion. Students will explore the differences between agile and traditional project management methodologies. Course focuses on the Scrum agile framework designed to increase efficiency and effectiveness of the software development process and ensure the delivery of the highest quality product within budgetary and scheduling constraints. Note: Pending ICCB approval. <i>Instruction Type: In-Person Online Hybrid</i> <i>Term Typically Offered: Fall Spring Summer</i></p>	<p>CIS 152 3 credit hours (lecture: 3 lab: 2) Web Development Tools Course introduces Web development tools, including HTML editors and Web site managers as well as graphics manipulation tools. Content includes use of these tools to create interactive Web Sites which integrate style sheets, DHTML components and Javascript. Recommended: CIS 131 with minimum grade of C IAI Major: MC 923 <i>Instruction Type: In-Person Online Hybrid</i> Fee: \$20 <i>Term Typically Offered: Fall Spring</i></p>
<p>CIS 143 3 credit hours (lecture: 3 lab: 1) Introduction to SQL Course provides theoretical and hands-on instruction on data server technology. Content includes relational databases concepts, SQL syntax, SQL commands to create and maintain database objects and to store, retrieve, display, query, and manipulate data, functions, blocks of application code that can be shared by multiple forms, reports, and data management applications; and commands to execute blocks of code. Recommended: CAB 140 or comparable experience with a representative database software package, and knowledge of a programming language. <i>Instruction Type: In-Person Online Hybrid</i> Fee: \$10 <i>Term Typically Offered: Fall Spring</i></p>	<p>CIS 171 3 credit hours (lecture: 3 lab: 1) Advanced Web Page Development Course expands basic development of Web pages to build additional interaction and functionality into them. Content includes style sheets, database queries, basic scripting, applets, and Dynamic HTML as incorporated into the Web page code; Web site organization and navigation strategies. Recommended: Knowledge of basic programming concepts, CIS 131. <i>Instruction Type: In-Person Online</i> Fee: \$10 <i>Term Typically Offered: Fall Spring</i></p>
	<p>CIS 180 4 credit hours (lecture: 3 lab: 2) Introduction to Visual Basic .NET Programming Course introduces programming using the Visual Basic .NET programming language to solve business-related problems. Content includes program development and design, object-oriented programming, screen design, structured programming techniques, and event-driven programming using objects. Programming assignment concepts include arithmetic calculations, decision making, looping, soft and hard copy display, subroutines and functions, data validation, working with arrays, introductory concepts of file creation and data retrieval and accessing, updating, and querying data in a database. Recommended: CIS 101, and CSC 155 (C++) or CSC 156 (Java) or CSC 157 (Python) or comparable programming knowledge or consent of instructor or program coordinator. <i>Instruction Type: In-Person Online</i> Fee: \$20 <i>Term Typically Offered: Fall Spring</i></p>

<p>CIS 188 4 credit hours (lecture: 3 lab: 2) Active Server Pages Course introduces Active Server Pages (ASP+). Content includes hands-on activities and lectures to increase familiarity with developing advanced Web applications using Active Server Pages (ASP+); advanced Internet architecture, using advanced Web development tools; the Active Server Page model, processing forms, integrating Web applications with data; and other server based applications, configuring Web applications, and using Web services to integrate Web applications. Recommended: CIS 171 with a minimum grade of C OR consent of the Instructor or Program Coordinator. <i>Instruction Type: In-Person Online</i> Fee: \$20 <i>Term Typically Offered: Fall Spring</i></p>	<p>CIS 205 3 credit hours (lecture: 3 lab: 0) Documentation and Technical Writing Course explores various types of written communications used in the computer environment. Content includes steps, techniques and tools necessary to produce a variety of documents while using the basic skills necessary for clear, succinct writing. Focus is on development of computer documentation such as user manuals, technical reports, standards manuals and feasibility studies. Recommended: Knowledge of any programming language and EGL 101; student should have a basic understanding of the tools and functions in using a computer in a business environment. <i>Instruction Type: In-Person Online</i> <i>Term Typically Offered: Fall</i></p>
<p>CIS 201 3 credit hours (lecture: 3 lab: 1) Information Systems for Business Course explores the types of information used in business, the flow of information through an organization, and a framework for examining characteristics of Accounting Information Systems in relation to other information system components. Content includes transaction processing systems, internal management reporting, and the day-to-day operational support. Course also covers Enterprise Resource Planning (ERP) systems and Systems Development Life Cycle (SDLC). Recommended: CIS 101 or CIS 103 and four credits of CIS courses <i>Instruction Type: In-Person Online</i> Fee: \$25 <i>Term Typically Offered: Fall</i></p>	<p>CIS 206 3 credit hours (lecture: 3 lab: 1) Software Cybersecurity An introductory course of computer security principles and practices with applications to databases and software systems. An emphasis is placed on securing database authentication and authorization processes; and, securing systems through responsible software development and scripting techniques. Credit toward graduation cannot be received for both CIS 206 and CSC 206. Prerequisite: CSC 155, CSC 156 or CSC 157 with a minimum grade of C. <i>Instruction Type: In-Person Online Hybrid</i> Fee: \$20</p>
<p>CIS 203 3 credit hours (lecture: 3 lab: 1) Managing Information Systems Course focuses on how to analyze and manage the fundamentals of a computer information system, with emphasis on design, implementation, control, evaluation, and strategic use. Content includes hands-on experience with business software and Enterprise Resource Systems, emphasizing the managerial and strategic aspects of information technology. Course provides an overview of the Systems Development Life Cycle (SDLC) and/or development/purchase of an information system. Student completes an in-depth business needs analysis, including software and hardware recommendations, plus procedures, prototypes, and a Request for Proposal. Recommended: CIS 201 and four additional CIS course credits. <i>Instruction Type: In-Person Online</i> Fee: \$25 <i>Term Typically Offered: Spring</i></p>	<p>CIS 208 4 credit hours (lecture: 3 lab: 2) Visual Basic for Applications Course introduces programming using Visual Basic for Applications (VBA) to automate or customize operations in Word, Excel, and Access. The Visual Basic editor will be used to code, compile, execute, and debug programs. Content includes programming logic and writing VBA code that uses variables, looping, decision-making, functions, procedures, and SQL. Recommended: CIS 103 or CAB 135 and CAB 140, ability to manage files using Windows, and MAT 070 or one year of high school algebra <i>Instruction Type: In-Person Online</i> Fee: \$20 <i>Term Typically Offered: Fall Spring</i></p>
<p>CIS 204 3 credit hours (lecture: 3 lab: 1) Introduction to System Analysis and Design Course introduces the systems development life cycle of a computer system. Content includes the investigation, analysis, design, implementation and evaluation phases of a business system, tools (e.g. CASE) and techniques used by the systems analyst. Recommended: CIS 101 or CIS 103 and one programming language course or concurrent enrollment in one programming language course. <i>Instruction Type: In-Person Online</i> Fee: \$10 <i>Term Typically Offered: Fall</i></p>	<p>CIS 209 4 credit hours (lecture: 4 lab: 1) Database Programming for PCs Course offers instruction in designing and developing a business application using a representative microcomputer database management package. Content includes macros, VBA programming, database security, and complex queries, forms, and reports to complete a database case study that demonstrate analysis, design, and development of a business application. Recommended: CAB 140 or comparable knowledge of database software. <i>Instruction Type: In-Person Online</i> Fee: \$10</p>
	<p>CIS 210 4 credit hours (lecture: 3 lab: 2) Visual Basic .NET Programming for Files and Databases Course concentrates on writing programs that use files and databases to enter, store, and display data. Content includes various data controls, grids, and data bound controls used with the access technologies provided by Visual Basic; principles of database usage, use of Structured Query Language (SQL) to provide access to data, Data Access Objects, Remote Data Objects, ODBC, and Active X Data Objects. Recommended: CIS 180 and CAB 140, or consent of instructor, department coordinator or chair. <i>Instruction Type: In-Person Online</i> Fee: \$20 <i>Term Typically Offered: Fall Spring</i></p>

<p>CIS 228 Linux I</p> <p>Course is designed to teach students about the Linux operating system through both theoretical and practical instruction. Students will explore the system architecture, installation procedure, command line interface, and file system of Linux. They will learn the fundamental structures and components of Linux, such as the kernel, system libraries, and essential utilities. Credit toward graduation cannot be received for both CIS 228 and CNS 228.</p> <p>Prerequisite: CIS 218 or CNS 218 or consent of department chair. <i>Instruction Type: In-Person Online Hybrid</i> <i>Term Typically Offered: Fall Spring</i></p>	<p>3 credit hours (lecture: 2 lab: 2)</p> <p style="text-align: right;">Fee: \$10</p>	<p>CIS 241 Database Management</p> <p>Course introduces management of database systems including design, development, implementation, recovery, and security of databases. Content includes database models, entity-relationship (E-R) modeling, normalization, data warehousing; an introduction to SQL; the database life cycle, transaction management, distributed databases, client/server systems; using databases in e-commerce and on the Internet, and the role of the database administrator.</p> <p>Recommended: One programming course and CAB 140 or comparable knowledge. <i>Instruction Type: In-Person Online</i> <i>Term Typically Offered: Fall</i></p>	<p>3 credit hours (lecture: 3 lab: 1)</p> <p style="text-align: right;">Fee: \$10</p>
<p>CIS 231 Advanced Java Programming</p> <p>Course examines topics in various Java technologies. Content includes inner classes, multithreading, reflection, collection classes, Swing, TCP/IP networking, Java database connectivity (JDBC), remote method invocation (RMI), CORBA (interactive data language), servlets, and Java server pages (JSP). Students will be able to develop distributed object applications and write Web pages using advanced server side programming through servlets and Java server pages.</p> <p>Recommended: CIS 211 or comparable knowledge. <i>Instruction Type: In-Person Online</i></p>	<p>4 credit hours (lecture: 3 lab: 2)</p> <p style="text-align: right;">Fee: \$20</p>	<p>CIS 245 Database Fundamentals II</p> <p>Course continues to develop the knowledge needed to perform the tasks of a database administrator. Topics include methods to backup, restore, and recover the database given various different scenarios, transporting data between databases and the utilities used, networking concepts and configuration parameters, solving common network problems, and configuring network parameters to allow the database clients to communicate with the database server. This course leads to the Oracle Database Administrator Certified Professional certification.</p> <p>Recommended: CIS 145 or comparable knowledge. <i>Instruction Type: In-Person Online</i> <i>Term Typically Offered: Spring</i></p>	<p>4 credit hours (lecture: 4 lab: 1)</p> <p style="text-align: right;">Fee: \$40</p>
<p>CIS 232 Web Scripting</p> <p>Course combines hands-on activities and lectures to increase familiarity with developing web applications with JavaScript, PHP, XML, or another contemporary web language. Content includes enhancing web pages using interactive features; manipulating built-in objects; and validating and processing forms. Course can be repeated on different topics up to three times for up to 12 twelve credits.</p> <p>Recommended: CIS 101, and CSC 155 (C++) or CSC 156 (Java) or CSC 157 (Python) and CIS 171 or comparable programming knowledge or consent of the instructor or program coordinator. <i>Instruction Type: In-Person Online Hybrid</i></p>	<p>4 credit hours (lecture: 3 lab: 2)</p> <p style="text-align: right;">Fee: \$20</p>	<p>CIS 247 Performance Tuning</p> <p>Course focuses on maximizing the performance of the database from the design to using the database in a production environment. Course focuses observing, defining, and diagnosing the problem, and implementing a solution using various methods, techniques, and diagnostic tools. Students will learn how to observe, monitor, identify, troubleshoot, tweak, and resolve common performance-related problems. This course leads to the Oracle Database Administrator Certified Professional certification.</p> <p>Recommended: CIS 245 or comparable knowledge. <i>Instruction Type: In-Person Online</i> <i>Term Typically Offered: Fall Spring</i></p>	<p>4 credit hours (lecture: 4 lab: 1)</p> <p style="text-align: right;">Fee: \$10</p>
<p>CIS 236 Project Management</p> <p>Course introduces principles of Project Management as defined by the Project Management Institute (PMI). Content includes experiential exercises and team participation to gain experience with computer-based project management procedures, and to increase basic familiarity with state-of-the-art project management software. Credit toward graduation cannot be received for both CIS 236 and MGT 236. <i>Instruction Type: In-Person Online</i> <i>Term Typically Offered: Fall Spring</i></p>	<p>3 credit hours (lecture: 3 lab: 1)</p> <p style="text-align: right;">Fee: \$10</p>	<p>CIS 248 Web Database Management</p> <p>Course introduces Web database technologies. Content includes hands-on activities and lectures to increase familiarity with methods used to create dynamic Web applications that interact with a data source, such as a relational database. Elective for majors of World Wide Web program. Recommended: CIS 171 and CAB 140, with minimum grade of C. <i>Instruction Type: In-Person Online</i> <i>Term Typically Offered: Fall Spring</i></p>	<p>4 credit hours (lecture: 3 lab: 2)</p> <p style="text-align: right;">Fee: \$20</p>
<p>CIS 238 Linux II</p> <p>Course teaches students the advanced skills and knowledge necessary to administer small to medium networks in today's computing environments. Throughout this course, students will delve into the shell features, command-line interfaces, shell scripting, protocols, configurations, system logging, networking, security, and troubleshooting. Credit toward graduation cannot be received for both CIS 238 and CNS 238.</p> <p>Prerequisite: CIS 228 or CNS 228 or consent of department chair. <i>Instruction Type: In-Person Online Hybrid</i> <i>Term Typically Offered: Fall Spring</i></p>	<p>3 credit hours (lecture: 2 lab: 2)</p> <p style="text-align: right;">Fee: \$10</p>		

CIS 251 **3 credit hours (lecture: 2 | lab: 10)****Computer Information Systems Internship**

Course consists of direct work experience in a computer information systems related environment at an approved business or industrial firm applying knowledge and skills learned to their daily assigned responsibilities. The student will meet with a Computer Information Systems instructor who will evaluate their on-the-job technical skills. Arrangements for the work experience will be worked out in conjunction with the Computer Information Systems coordinator. In addition, the student will discuss work-related situations with the instructor.

Prerequisite: Completion of a minimum of 15 credits in CIS, CAB, or CNS with a grade of C or better in each course and consent of instructor, department coordinator, or program chair.

Instruction Type: In-Person | Online

Term Typically Offered: Fall

CIS 253 **2 credit hours (lecture: 2 | lab: 0)****Project Management Certification Preparation**

Course offers an intensive review of project management concepts and the application of these concepts to various business scenarios in preparation for the Project Management Professional (PMP) certification exam. Credit toward graduation cannot be received for both CIS 253 and MGT 253.

Recommended: CIS 236 or MGT 236 or comparable knowledge or consent of instructor.

Instruction Type: In-Person | Online

Term Typically Offered: Fall | Spring

CIS 257 **4 credit hours (lecture: 3 | lab: 2)****Apps Programming for Apple Mobile Devices**

Course covers the fundamentals needed to develop iOS applications for the iPad and iPhone mobile platforms. Introduced is Swift (the programming language), Xcode (the development environment), and Cocoa Touch (the framework for building software programs). Content includes program design and development, designing user interfaces including swipe gestures and rotation, visual and object-oriented programming, and event-driven programming using user interface objects and controls. Learn to sell apps in Apple's App store.

Recommended: CIS 101, and CSC 155 (C++) or CSC 156 (Java) or CSC 157 (Python) or comparable programming knowledge or consent of the instructor or program coordinator.

Instruction Type: In-Person | Online

Fee: \$20

Term Typically Offered: Fall | Spring

CIS 258 **4 credit hours (lecture: 3 | lab: 2)****Apps Programming for Android Mobile Devices**

Course covers the fundamentals needed to develop Android applications for mobile devices. The Java for Android programming language and Eclipse (the development environment) will be used. Topics include designing and developing user interfaces, layouts, development tools, recognize gestures and touches, display text and images, store data, and graphics.

Recommended: CIS 101, and CSC 155 (C++) or CSC 156 (Java) or CSC 157 (Python) or comparable programming knowledge or consent of the instructor or program coordinator.

Instruction Type: In-Person | Online

Fee: \$20

Term Typically Offered: Fall | Spring

CIS 267 **4 credit hours (lecture: 3 | lab: 2)****Advanced Apps Programming Using Apple Mobile Devices**

Course covers the advanced concepts needed to build rich iOS applications for the iPad and iPhone mobile platforms. Students will code, compile, execute, and debug mobile applications using the Swift programming language to develop programs using advanced programming concepts such as Storyboarding, Master-Detail viewability, Push Notification, etc. SQLite databases will be introduced including database design techniques for mobile devices. Deploying apps to the Apple Store will be included.

Recommended: CIS 257 or comparable programming knowledge or consent of the instructor or the program coordinator.

Instruction Type: In-Person | Online

Fee: \$20

Term Typically Offered: Fall | Spring

CIS 268 **4 credit hours (lecture: 3 | lab: 2)****Advanced Apps Programming for Android Mobile Devices**

Course covers the advanced concepts needed to build rich Android applications for the Android mobile platform. Student will code, compile, execute, and debug mobile applications using the Java for Android programming language and Eclipse to develop programs using advanced programming concepts. Topics include SQLite databases, locations and maps, background processing, User-Interface components and advanced controls, and web content.

Recommended: CIS 258 or comparable programming knowledge or consent of Instructor or Program Coordinator.

Instruction Type: In-Person

Fee: \$20

Term Typically Offered: Fall | Spring

CIS 270 **3 credit hours (lecture: 3 | lab: 1)****Automated Testing and Deployment**

Course provides students with an advanced understanding of software deployment and testing using industry-standard tools and practices. Students will gain hands-on experience with applications such as Jenkins and Kubernetes for deployment and JUnit and Jest for software testing.

Prerequisite: CIS 171.

Note: Pending ICCB approval.

Instruction Type: In-Person | Online | Hybrid

Term Typically Offered: Fall | Spring | Summer

CIS 290 **1-4 credit hours (lecture: 1-4 | lab: 1-4)****Topics In Computer Information Systems**

Course covers a variety of different topics current with technological advances in Computer Information Systems. Topics will be identified for each section of the course and students may repeat the course three times with different topics. Fee Varies. Prerequisite may vary by topic.

Instruction Type: In-Person | Online