### COMPUTER INFORMATION SYSTEMS (CIS)

**CIS 102. Computer Software Applications - Word**  
**Credits:** 3  
**Typically Offered:** FALLSPR  
Provides hands-on operation of personal computers with the word processing software, Microsoft Word. Students should have keyboarding skills before enrolling in the class. This class prepares students to take the Microsoft Office Specialist exam for Word 2016. Students will need access to Word 2016 software for this course. The program is included in the Office 2016 suite. The software is available as a free download through BSC email accounts and in computer labs on campus. The MOS exam is required for completion of the course. Final grade is not based upon whether student passes or fails MOS exam.

**CIS 104. Microcomputer Database**  
**Credits:** 3  
**Typically Offered:** FALLSPR  
This is an introduction to the planning, design and programming of database systems using software designed for database management, Microsoft Access. Students should have keyboarding skills before enrolling in this class. This class prepares students to take the Microsoft Office Specialist exam for Access 2016. Students will need access to Access 2016 software for this course. The program is included in the Office 2016 suite. The software is available as a free download through BSC email accounts and in computer labs on campus. The MOS exam is required for completion of the course. Final grade is not based upon whether student passes or fails MOS exam.

**CIS 105. Microcomputer Spreadsheets**  
**Credits:** 3  
**Typically Offered:** FASPSU  
Provides hands-on operation of personal computers with the spreadsheet software, Microsoft Excel. Students should have keyboarding skills before enrolling in class. This class prepares students to take the Microsoft Office Specialist exam for Excel 2016. Students will need access to Excel 2016 software for this course. The program is included in the Office 2016 suite. The software is available as a free download through BSC email accounts and in computer labs on campus. The MOS exam is required for completion of the course. Final grade is not based upon whether student passes or fails MOS exam.

**CIS 107. Linux Fundamentals**  
**Credits:** 3  
**Typically Offered:** FALLSPR  
This course introduces students to the Linux operating system. It provides practical skills using command line utilities, managing processes and file systems, as well as installing and maintaining software. In addition to gaining practical Linux experience, this course helps to prepare students for the CompTIA Linux+ certification exams.

**CIS 128. Microcomputer Hardware I**  
**Credits:** 3  
**Typically Offered:** FALLSPR  
Students learn the functionality of hardware and software components as well as suggested best practices in maintenance and safety issues. The students, through hands-on activities and labs, learn to assemble and configure a computer, install operating systems and software, and troubleshoot hardware and software problems. In addition, this course helps students prepare for the CompTIA A+ certification.

**CIS 130. Presentations**  
**Credits:** 3  
**Typically Offered:** FALLSPR  
This class provides hands-on production of researching, creating and delivering electronic business presentation projects using Microsoft PowerPoint. Students should have keyboarding skills before enrolling in this class. This class prepares students to take the Microsoft Office Specialist exam for PowerPoint 2016. Students will need access to PowerPoint 2016 software for this course. The program is included in the Office 2016 suite. The software is available as a free download through BSC email accounts and in computer labs on campus. The MOS exam is required for completion of the course. Final grade is not based upon whether student passes or fails MOS exam.

**CIS 147. Principles of Information Security**  
**Credits:** 3  
**Typically Offered:** FALLSPR  
This course introduces students to the field of information security. Topics covered include basic security principles, terminology, legal and ethical issues, as well as examining security from business and personal perspectives.

**CIS 152. Cascading Style Sheets**  
**Credits:** 3  
**Prerequisites:** CIS 154, CIS 230 and CIS 251.  
**Typically Offered:** FALL  
Students will learn how to produce and maintain cross-browser CSS files using the Sass CSS preprocessor and its companion authoring framework, Compass.
CIS 154. Web Design Theory
Credits: 3
Typically Offered: FALL
Students will learn how to create and manage their own Web pages using current Hypertext Markup Language (HTML), and CSS. Students will learn to write code manually, as well as use graphical user interface (GUI) authoring tools. Course content includes marketing and implementing fundamental design concepts, validating code, and the planning phases of good Web design.

CIS 164. Networking Fundamentals I
Credits: 4
Typically Offered: FASPSU
This course focuses on learning the fundamentals of networking. Students will learn both the practical and conceptual skills that build the foundation for understanding basic networking. By the end of the course, student will be able to build simple LANs, perform basic configurations for routers and switches, and implement IP addressing schemes.

CIS 165. Networking Fundamentals II
Credits: 4
Prerequisite: CIS 164.
Typically Offered: SPRING
This course focuses on learning the architecture, components, and operations of routers and switches in a small network. Students learn to configure a router and a switch for basic functionality. By the end of this course, students will be able to configure and troubleshoot routers and switches. Some topics include RIPv1, RIPv2, virtual LANs, and inter-VLAN routing in IPv4 and IPv6 networks.

CIS 185. Introduction to Programming
Credits: 3
Typically Offered: FALLSPR
This course provides an introduction to the use of scripting and programming languages.

CIS 202. Advanced Software Applications
Credits: 3
Prerequisite: CIS 102, CIS 105 and CIS 130.
Corequisite: CIS 104.
Typically Offered: SPRING
Provides hands-on experience with the powerful integration capabilities of the Microsoft Office suite. Students enrolled in this course must have access to Microsoft Office 2016, specifically Word, Excel, Access, and PowerPoint for the duration of the entire course. The software is available as a free download through BSC email accounts and in computer labs on campus. Students who have not completed all prerequisites should discuss options with their advisor.

CIS 204. Database Design and Structured Query Language (SQL)
Credits: 3
Typically Offered: FALL
This course provides students with a foundation in database design and provides the technical skills required to read and write SQL queries.

CIS 206. Database Implementation and Administration
Credits: 3
Typically Offered: ONDEMAND
This course provides students with the knowledge and skills required to install, configure, administer and troubleshoot client-server database management systems.

CIS 208. Database Programming
Credits: 3
Prerequisite: CIS 204 or departmental approval.
Typically Offered: ONDEMAND
This course provides students with the technical skills required to program a database solution, using stored procedures, SQL, and proper database design principles.

CIS 209. Data Warehousing
Credits: 3
Prerequisite: CIS 208.
Typically Offered: ONDEMAND
This course provides students with the technical skills required to plan, implement, and maintain a data warehouse.
CIS 210. Desktop Publishing
Credits: 3
Typically Offered: FALL
A layout and design course using Adobe Creative Suite software to produce a variety of desktop publishing application projects. Students should have keyboarding, basic computer file management, and word processing skills before enrolling in this class. Students enrolled in this course must have access to the required software listed in the syllabus for the duration of the course. Required software is available in selected BSC computer labs for student use or for purchase at the BSC Bookstore at academic pricing. It is recommended, but not required, that CSCI 101 be taken with CIS 210 if these basic computer skills are needed.

CIS 211. Database Programming Project
Credits: 3
Prerequisite: CIS 208.
Typically Offered: ONDEMAND
This course requires students to produce a comprehensive database programming project. Design issues, implementation, and database troubleshooting will be discussed.

CIS 212. Microsoft Windows Operating System Client
Credits: 3
Typically Offered: FALLSPR
The course helps learners to gain the knowledge and skills to install, configure, customize, optimize, and troubleshoot the Microsoft Windows operating system in a stand-alone and network environment. This course provides a foundation for Microsoft Certified Solutions Associate (MCSA) certification.

CIS 213. Implementing Microsoft Windows Server Applications
Credits: 3
Typically Offered: FALLSPR
This course introduces the learner to the Microsoft Windows Server and the application server technologies it supports. This course provides a foundation for Microsoft Certified Solutions Associate (MCSA) certification.

CIS 214. Implementing a Microsoft Windows Active Directory Infrastructure
Credits: 3
Prerequisite: CIS 216.
Typically Offered: FALL
This course provides students with the knowledge and skills necessary to install, configure, and administer Microsoft Windows Active Directory services. The course also focuses on implementing Group Policy and performing the Group Policy-related tasks that are required to centrally manage users and computers. This course provides a foundation for Microsoft Certified Solutions Associate (MCSA) certification.

CIS 215. Implementing a Microsoft Windows Server Environment
Credits: 3
Prerequisite: CIS 216.
Typically Offered: ONDEMAND
This course introduces the learner to Microsoft Windows Server and the networking technologies it supports. The learner will become familiar with networking and operating system concepts and the common tasks required to administer and support the Microsoft Windows operating system in a network environment. Windows Server 2008 is the current focus of the class. This course leads to the Microsoft Certified Technology Specialist (MCTS) and Microsoft Certified IT Professional (MCITP) certifications.

CIS 216. Implementing a Microsoft Windows Network Infrastructure
Credits: 3
Typically Offered: SPRING
This course helps learners who will be responsible for configuring, managing, and troubleshooting a network infrastructure that uses the Microsoft Windows Server products. Students will learn how to install and manage a Microsoft Server and its roles. DHCP, DNS, RRAS, and File and Print services will be explored along with other roles and services. This course can help provide a foundation for the Microsoft Certified Technology Specialist (MCTS) and Microsoft Certified IT Professional (MCITP) certifications.

CIS 221. Networking Essentials
Credits: 3
Typically Offered: FALL
This course introduces students to the concepts and terminology of data communications, local area and wide area networks, communications hardware, standards, media, signaling concepts, data communication, error prevention, detection and correction. Course prepares students to write the Network Technology Associate exam. This CIW exam is required and students will be assessed an exam fee. Final grade is not based on whether student passes or fails certification.
CIS 223. Linux System Administration
Credits: 3
Prerequisite: CIS 107 or departmental approval.
Typically Offered: FALL
This course covers topics relating to the administration of Linux computer systems. It provides experience in user management, task scheduling, system logging, shell scripting, system security, and other common system administration tasks. In addition to gaining practical Linux experience, this course helps to prepare students for the CompTIA Linux+ certification exams.

CIS 226. Linux Network and Security Administration
Credits: 3
Prerequisite: CIS 223 or departmental approval.
Typically Offered: SPRING
This course provides experience installing, configuring, securing, and administering Linux network services. Topics include DNS servers, web servers, network file sharing, and other common network communication components. In addition to gaining practical Linux experience, this course helps to prepare students for the LPIC-2 Linux Network Professional certification exams.

CIS 230. Electronic Publishing
Credits: 3
Typically Offered: FALL SPR
In this course, you will learn step-by-step instructions and in-depth explanations of the features of Adobe Dreamweaver CC. Concepts include working with text, images, links, tables, forms, CSS and publication of websites. Students enrolled in this course must have access to the required software listed in the syllabus for the duration of the course. Required software is available in selected BSC computer labs for student use or for purchase from Adobe.

CIS 231. Search Engine Optimization (SEO)
Credits: 3
Prerequisites: CIS 154 or CIS 230, and ENGL 110 or departmental approval.
Typically Offered: FALL
Students will learn the basic principles of optimizing Web sites for improved performance in search engine results, ultimately enhancing the marketability of their Web site products and/or services. Students will further develop a basic understanding of the history of search engines, differences in search engine and directory results, and applied practices in structuring HTML and page content to increase the website's visibility to the consumer.

CIS 235. DB Design for Web Applications
Credits: 3
Typically Offered: FALL
This course introduces students to SQL and the query use within databases. Students will develop queries for information retrieval using SQL, including the use of operators, clauses, predicates, functions, concatenated fields, calculated fields, crosstab queries, parameter queries, updates and joins.

CIS 241. Digital Forensics Fundamentals
Credits: 3
Typically Offered: FALL SPR
This course introduces students to digital forensics. Topics covered include the investigative process, preservation of evidence, computer and mobile forensics issues, as well as working with forensics.

CIS 250. Advanced Web Design
Credits: 3
Prerequisites: CIS 154 and CSCI 122 or departmental approval.
Typically Offered: SPRING
Students will learn how to add JavaScript to their Web pages. Concepts covered include variables, expressions, operators, functions, methods, objects, events, control structures, windows, forms, strings, arrays, cookies, DHTML, and AJAX.

CIS 251. Site Design
Credits: 3
Prerequisites: CIS 154 and CIS 230.
Typically Offered: SPRING
This course offers continued study in the design and development of website projects. Students will create up to three websites for inclusion in student portfolios.

CIS 252. XML
Credits: 3
Prerequisites: CIS 154 and CIS 104, or CIS 235 or departmental approval.
Typically Offered: SPRING
This course will introduce students to Extensible Markup Language (XML). Concepts covered include document type definitions (DTDs), schemas, namespaces. Other topics covered include the use of XML in application software, such as Microsoft Office suite.
CIS 253. PHP
Credits: 3
Prerequisites: CIS 154 and CIS 250 or departmental approval.
Typically Offered: SPRING
Students will learn how to design dynamic, data-driven Web pages using PHP. Concepts covered include variables, constants, data types, expressions, operators, functions, controls structures, strings, forms, files, directories, arrays, databases and MySQL.

CIS 255. Computer and Network Security
Credits: 3
Typically Offered: SPRING
This course introduces students to technologies and practices used to secure computers and networks. Topics covered include cryptography, authentication, VPNs, and other aspects of enterprise security. Extensive networking and operating system knowledge is recommended. In addition to practical security-related experience, this course helps to prepare students for the CompTIA Security+ certification exam.

CIS 256. Web Portfolio
Credits: 3
Prerequisites: CIS 154 and CIS 230.
Repeat Status: Repeatable up to 6.00 credits.
Typically Offered: SPRING
This course will be taken both at the Freshman and Sophomore level. The Freshman level course will begin development of a student web portfolio through focus on development aspects for redesigning web pages and networking with the web development community. Students will redesign web pages from prior work, and complete community networking activities, including conducting informational and mock interviews with web development professionals. The Sophomore level course continues with the development of the student web portfolio through emerging technologies in the web industry.

CIS 257. JavaScript with jQuery
Credits: 3
Typically Offered: FALL
Prequisites: CIS 152, CIS 154 and CIS 250.
Build today’s dynamic, mobile, interactive web sites using jQuery, a popular and widely-used open source JavaScript library of prewritten JavaScript. Learn to use jQuery’s special controls to make image slide shows, fade-ins, calendars, and tabbed folders. Use jQuery to select elements, wrap elements sets, and customize and change web page styles, appearance, visibility, text, and HTML. Learn to test for and handle browser differences, mark up Cascading Style Sheets, build advanced navigation widgets including accordion, tabbed, and slider widgets and validate web forms.

CIS 258. Advanced PHP
Credits: 3
Prerequisite: CIS 253.
Typically Offered: SPRING
Students will learn more advanced PHP techniques for session management, validation, and authentication. Advanced web application features such as shopping carts, a content manager, web forums and connecting to web services are discussed.

CIS 264. Web Application Development
Credits: 3
Typically Offered: FALL
This course provides an introduction to the languages used to develop applications that run in web browsers and on web servers. Topics include HTML, Cascading Stylesheets, JavaScript, PHP, and Content Management Systems.

CIS 267. Intermediate Networking I
Credits: 4
Prerequisite: CIS 165 or departmental approval.
Typically Offered: FALL
In this course, students learn to configure advanced router and switch functionality. Topics covered include single-area OSPF, multi-area OSPF, and the EIGRP routing protocols. STP default gateway redundancy, and EtherChannel are also addressed. This is the third of four courses providing a foundation for the Cisco Certified Network Associate (CCNA) certification.

CIS 268. Intermediate Networking II
Credits: 4
Prerequisite: CIS 267, or departmental approval.
Typically Offered: SPRING
In this course, students learn to connect networks together. Topics covered include Wide Area Networks, Frame Relay communication, broadband connectivity, and site-to-site VPNs. This is the fourth of four courses providing a foundation for the Cisco Certified Network Associate (CCNA) certification.
CIS 269. Cybersecurity and Computer Networks Capstone  
Credits: 3  
Typically Offered: SPRING  
A capstone course for the Cybersecurity and Computer Networks program. This class prepares students to enter the IT workforce. Students will compete in a national cybersecurity competition, prepare resumes, job shadow, and discuss other employment related topics. It is recommended that students take this course during their last semester in the Cybersecurity and Computer Networks program.

CIS 270. Advanced IP Routing  
Credits: 4  
Prerequisite: CIS 268, CCNA certification or departmental approval.  
Typically Offered: ONDEMAND  
This course teaches the advanced skills required to implement and support enterprise-class IP routing networks. Topics covered include advanced EIGRP, advanced OSPF, route optimization, and BGP. This is the first of three courses leading to the Cisco Certified Professional (CCNP) Routing and Switching certification.

CIS 272. Advanced IP Switching  
Credits: 4  
Prerequisite: CIS 268, CCNA certification, or departmental approval.  
Typically Offered: ONDEMAND  
This course teaches the advanced skills required to implement and support enterprise class switched networks. Topics covered include scalable network design, advanced STP, implementing inter-VLAN routing, first hop redundancy and supporting high availability. This is the second of three courses leading to the Cisco Certified Network Professional (CCNP) Routing and Switching certification.

CIS 273. Advanced IP Network Troubleshooting  
Credits: 4  
Prerequisites: CIS 270 and CIS 272 or departmental approval.  
Typically Offered: ONDEMAND  
This course teaches students to maintain and troubleshoot enterprise IP networks. Skills learned include the planning and execution of regular network maintenance, as well as support and troubleshooting using technology based processes and best practices. This is the third of three courses leading to the Cisco Certified Network Professional (CCNP) Routing and Switching certification.

CIS 274. Cybersecurity Operations  
Credits: 3  
Typically Offered: FALL  
This course teaches core security skills needed for monitoring, detecting, investigating, analyzing and responding to security events, thereby protecting systems and organizations from cybersecurity risks, threats and vulnerabilities.

CIS 280. Cyber Ethics  
Credits: 3  
Typically Offered: FALL SPR  
This class is an introduction to ethical problems and decision making as it relates to computers, cybersecurity, and emerging technologies. Students will be asked to examine moral issues, and apply ethical theory to them. Aspects of what is right, wrong and socially acceptable in terms of technology use will be discussed.

CIS 282. Ethical Hacking and Network Defense  
Credits: 3  
Prerequisite: CIS 255 or departmental approval.  
Typically Offered: FALL SPR  
This course provides experience securing computer network resources. The tools and methodologies attackers use will be examined, as well as defenses against them.