Computer Information Systems

Learning Computer Basics

CIS 0800 - 3 Credits

Prepares students for computer related courses that do not require a prerequisite and develops computer skills for personal or professional growth. Theory and practice are integrated through a combination of instructor-led lessons and mandatory, guided, self-paced practice exercises. Topics include hardware, word processing, math utilized in spreadsheets, presentation software, basic Internet use and e-mail. (3 lecture hours)

Using Computers: An Introduction

CIS 1110 - 2 Credits

Prepares students for the use of the computer as a productivity tool. Fundamentals of how a computer works by understanding hardware and the distinctions between system software and application software. Hands-on projects will use microcomputer applications to teach concepts related to word processing, spreadsheets, databases and presentation graphics. Topics include creation and maintenance of folders and files, networks, and information access using the Internet. (2 lecture hours, 1 lab hour)

The Internet

CIS 1120 - 2 Credits

Introduces the fundamental skills and knowledge needed to master and use the Internet. Provides an understanding of the concepts behind the Internet as a tool as well as hands-on activities using the Internet. Intended for a broad audience. (2 lecture hours)

Windows Basics

CIS 1130 - 2 Credits

Introduction to the Windows operating system and its Graphical User Interface (GUI). Prerequisite: Basic computer mouse skills (2 lecture hours)

Web Technologies & Cloud Computing

CIS 1140 - 3 Credits

Introduces the use of dynamic Web applications that provide the ability to collaborate and share information online, creating a connective intelligence with data, concepts, applications, and ultimately people. Focuses on user perspective of social and professional networking, current Web technologies, and Cloud Computing applications. Benefits, risks, and areas of legal and ethical concerns are discussed. Prerequisite: Computer Information Systems 1110 or Computer

Information Systems 1120 or Computer Information 1150 or equivalent or consent of instructor (3 lecture hours)

Intro to Computer Information Systems

CIS 1150 - 3 Credits

An overview of the computing field and its typical applications. Covers key terminology and components of computer hardware, software and operating systems. Other topics include systems development methods, management information systems, programming languages, communications, networks, application software, the Internet and career opportunities. Microcomputer applications include word processing, spreadsheet, database and presentation software. (3 lecture hours, 1 lab hour)

Windows Command Line

CIS 1160 - 2 Credits

Introduction to microcomputer operating systems. Provides an opportunity to work with the Microsoft Windows operating system command line. Includes the major components of an operating system, command syntax, disk format and management, internal/external commands, file manipulation, directory structure, files and disk maintenance, configuration and batch files, and network connectivity. (2 lecture hours)

Introduction to Networking

CIS 1180 - 3 Credits

Survey course in network management that provides the critical foundation of the theory and design of Local Area Networks (LAN). Includes network topologies, standards and protocols, LANs as nodes in larger networks in micro-to-mainframe links, the internet, wireless transmission, client-server, and an overview of security and Network Management and system administration. Prerequisite: Computer Information Systems 1150 or Computer Information Systems 1160 or consent of instructor (3 lecture hours)

Introduction to Game Industry

CIS 1199 - 3 Credits

An introduction to video game industry and development. This course explores the history of games, the game development cycle, game careers, and the social impact of games. (3 lecture hours)

Computer Information Systems

Game Design

CIS 1200 - 3 Credits

Survey of computer game and simulation design. Topics include design elements, user interface, game rules, genres and game media. (3 lecture hours)

Advanced Game Design

CIS 1201 - 3 Credits

Advanced exploration of game design and the different game genres. Topics will include storyboarding story and game play, troubleshooting game design and logic flaws, and conceptualizing games for modding. This course is a continuation of Computer Information Systems 1200. Recommended course: Computer Information Systems 1200. (3 lecture hours)

Office Ste SOFTWARE and Integration

CIS 1205 - 3 Credits

Introduction to the integrative aspects of business suite software. Concepts related to the creation and editing of word processing, spreadsheet, database, and graphics files. Includes the principles of document integration as it relates to suite applications and the integration of suite software to build web pages. Prerequisite: Computer Information Systems 1110 or Computer Information Systems 1130 or Computer Information Systems 1150 or consent of instructor (3 lecture hours)

2D Game Development

CIS 1211 - 3 Credits

Computer game development including player controls, sound, music and animation. Two-dimensional games will be created using game editors and development tools. Recommended courses: Computer Information Systems 1200 and Computer Information Systems 1400 (3 lecture hours)

Introduction to Spreadsheets

CIS 1221 - 3 Credits

Computerized spreadsheets, for database (list) operations, statistical analysis, and financial analysis, Includes planning and creating spreadsheets. Use of customization and automation features of software. Prerequisite: Computer Information Systems 1110 or Computer Information Systems 1130 or Computer Information Systems 1150 or equivalent or consent of instructor (3 lecture hours)

Advanced Spreadsheets

CIS 1222 - 2 Credits

Advanced features and analytical concepts for an electronic spreadsheet program. Customization, automation features, advanced data analysis and summarization tools are explored. Prerequisite: Computer Information Systems 1221 or equivalent, or consent of instructor (2 lecture hours)

Microcomputer Database Application

CIS 1230 - 3 Credits

Relational database management course using a Windows platform including database design, database creation, database maintenance, firm creation, report creation, query creation and macros creation. Instruction in application development and programming using a representative microcomputer database management package. Prerequisite: Computer Information Systems 1110 or Computer Information Systems 1130 or Computer Information Systems 1150 or consent of instructor (3 lecture hours)

Presentation Graphics - Windows Based

CIS 1240 - 2 Credits

Introduction to the design and use of presentation graphics for microcomputers in a Windows-based environment. Includes basics of visual design, numeric charts, text charts, diagrams, organization charts, screenshow presentations and other advanced topics. Prerequisite: Computer Information Systems 1110 or Computer Information Systems 1130 or Computer Information Systems 1150 or consent of instructor (2 lecture hours)

Intro to Project Management Software

CIS 1250 - 2 Credits

Introduction to project management software to effectively control project development. Topics covered include application of software in planning, timelines, communication, resources, and costs. Prerequisite: Computer Information Systems 1150 or consent of instructor (2 lecture hours)

IT Proposals and Presentations

CIS 1270 - 2 Credits

Introduces tools and techniques used to develop and present effective proposals for IT projects. Audience identification, stakeholder classification and decision making criteria will be covered. Recommended: Computer Information Systems 1150 with a grade of C or better, or equivalent. (2 lecture hours)

Computer Information Systems

Web Design Software

CIS 1300 - 3 Credits

Creation of Web sites using Web design software such as DreamWeaver or FrontPage. Topics include Web site design, styles, graphics, tables, frames, forms, and layers. Prerequisite: Computer Information Systems 1120 and Computer Information Systems 1130 or Computer Information Systems 1150 or consent of instructor (3 lecture hours)

HTML and CSS

CIS 1310 - 3 Credits

Creation of effective web pages using Hyper Text Markup Language (HTML) and Cascading Style Sheets (CSS). Includes web page and web site design concepts and preparation of graphics for the Web, with the primary focus on implementation of the design. Prerequisite: Computer Information Systems 1120 and Computer Information Systems 1130 or Computer Information Systems 1150 or consent of instructor (3 lecture hours)

Web Development for Educators

CIS 1315 - 3 Credits

Creation of an educational web site used within an academic environment using web design software, Hyper Text Markup Language (HTML) and Cascading Style Sheets (CSS). Prerequisite: Computer Information Systems 1110 or Computer Information Systems 1150 with a grade of C or better, or equivalent or consent of instructor (3 lecture hours)

Programming Logic and Technique

CIS 1400 - 4 Credits

An introduction to computer-based problem solving. Includes design tools such as structure charts, Input Processing Output charts (IPO), flowcharts, pseudocode and Object-Oriented Programming (OOP). Concepts such as documentation, structured design and modularity are emphasized. Actual programming experiences are assigned in a procedural level emphasizing structured design techniques. Prerequisite: Mathematics 0482 (or college equivalent) or Mathematics 1115 (or college equivalent) with a grade of C or better, or qualifying score on the mathematics placement test or qualifying A.C.T. math score or consent of instructor (4 lecture hours)

Intro to Linux/Unix Operating Systems

CIS 1450 - 3 Credits

Introduction to Linux and Unix, two multi-user, interactive real-time operating systems. Includes the Linux graphical user interfaces, Linux applications, Linux/Unix utilities, file structures, text editors, regular expressions and the help system. Emphasis on building the foundation necessary to understand the capabilities of both the Linux and Unix operating systems and on developing the basic skills necessary to utilize these systems effectively. Prerequisite: Computer Information Systems 1150 or Computer Information Systems 1160 or Computer and Internetworking Technologies 1122 or equivalent or consent of instructor (3 lecture hours)

Graphical User Interface Programming

CIS 1510 - 4 Credits

Introduction to event-driven programming in the Windows environment and design techniques used to create the Windows Graphical User Interface (GUI). Includes program design, program syntax and control structures, forms and controls. Prerequisite: Computer Information Systems 1130 and Computer Information Systems 1400 or consent of instructor (4 lecture hours)

Fundamental Principles Operating Systems

CIS 1600 - 3 Credits

Fundamental principles of operating systems, process execution, scheduling, memory management, concurrent processes, distributed processing, deadlock, security, and related topics. Also examines current microcomputer, mid-range computer, and mainframe operating systems. The following courses are strongly recommended: Computer Information Systems 1130 and Computer Information Systems 1160 (3 lecture hours)

Windows Client OS

CIS 1610 - 3 Credits

Introduces theoretical and practical concepts of local area network on the Microsoft Windows desktop Operating System (OS). Includes installing and configuring the client OS, administering users, managing devices, organizing file system, establishing security, and installation and configuration of networking components. Covers network and performance monitoring tools provided by the OS and the establishment of baselines to troubleshoot problems. This course may be taken four times for credit as new versions are released. Prerequisite: Computer Information Systems 1180 with a grade of C or better or equivalent or consent of instructor (2 lecture hours, 2 lab hours)

Windows Vista Administration

CIS 1611 - 3 Credits

Computer Information Systems

Introduces the theoretical and practical concepts of local area network on the Microsoft Windows Vista Operating System (OS). Includes installing and configuring the OS, administering users, managing devices, organizing file system, establishing security, and installation and configuration of networking components. Covers network and performance monitoring tools and establishes baseline for troubleshooting problems. Prerequisite: Computer Information Systems 1121 with a grade of C or better, or equivalent or Computer Information Systems 1180 with a grade of C or better, or equivalent or consent of instructor (2 lecture hours, 2 lab hours)

Windows Server OS

CIS 1620 - 3 Credits

Introduces administration of the Windows server Operating System (OS). Includes installing and configuring server operating system, planning security, installing applications, backing up file system, using utilities, managing users, setting network printers, and troubleshooting. Also includes Terminal Services (TS) administration and Network Monitor installation and configuration as well as system recovery functions. This course may be taken four times for credit as new versions are released. Prerequisite: Computer Information Systems 1610 with a grade of C or better or equivalent or consent of instructor (2 lecture hours, 2 lab hours)

Windows Server Active Directory (AD)

CIS 1630 - 3 Credits

Advanced administrative course for Windows server, Active Directory Services (ADS) on the Windows network operating system. Includes network administration tasks and tools, management of user and group accounts, organization of shared folders, management of ADS, policy, security, and installation and management of Trees and Forests. This course may be taken four times for credit as new versions are released. Prerequisite: Computer Information Systems 1620 with a grade of C or better or equivalent or consent of instructor. (2 lecture hours, 2 lab hours)

Managing Microsoft Windows Server Netwk

CIS 1660 - 3 Credits

Administration course for managing a Microsoft Windows Server network. Includes configuration, administration, and troubleshooting elements ranging from user accounts to server security. Covers how to create and manage network resources such as file, print and web resources as well as Active Directory (AD) objects. Prerequisite: Computer Information Systems 1620 or equivalent or consent of instructor (2 lecture hours, 2 lab hours)

Planning a Microsoft Win Server Network

CIS 1670 - 3 Credits

Administration course for planning a Microsoft Windows Server network. Includes overview of network services. Plan for a network infrastructure, network data flow, configuration of routing and switching, Dynamic Host Configuration Protocol (DHCP), and Domain Name Services (DNS). Covers security, network access, server availability, certificates, and problem recovery. Prerequisite: Computer Information Systems 1620 or equivalent or consent of instructor. (2 lecture hours, 2 lab hours)

Selected Topics

CIS 1820 - 1-3 Credits

Introductory exploration and analysis of selected topics with a specific theme indicated by course title listed in college Class Schedule. This course may be taken four times for credit as long as a different topic is selected each time. Prerequisites will vary depending upon the course contents. Skills attained in prerequisites are necessary for successful completion of the course. (3 lecture hours)

Independent Study

CIS 1840 - 1-4 Credits

Exploration and analysis of topics within the discipline to meet individual student-defined course description, goals, objectives, topical outline and methods of evaluation in coordination with and approved by the instructor. This course may be taken four times for credit as long as different topics are selected. Prerequisite: Consent of instructor is required (1 to 4 lecture hours)

2D Game Scripting

CIS 2211 - 3 Credits

Introduction to 2D game development using a scripting language. Topics include sprite control, keyboard, mouse, controller, game play, and control of non-playable characters. Recommended: Computer Information Systems 1211 (3 lecture hours)

3D Game Development

CIS 2212 - 3 Credits

Computer game level development in three dimensions. Topics include assets, textures, lighting, and camera. Computer game levels will be created using three-dimensional editors and development tools. Recommended: Computer Information Systems 1211 or experience with 3Dimension development software (3 lecture hours)

Computer Information Systems

Advanced 3D Game Development

CIS 2213 - 3 Credits

Advanced topics in 3D game level design and development. Advanced materials, particles, sound, camera, animation, and specialized editors will be covered. Recommended: Computer Information Systems 2211 (3 lecture hours)

Game Programming Using C++

CIS 2220 - 3 Credits

Game programming using C++ libraries to create Windows-based games and simulators. Topics include player controls, sound, music, and animation. Prerequisite: Computer Information Systems 2542 with a grade of C or better, or equivalent or consent of instructor. (3 lecture hours)

Simulation and Serious Game Design

CIS 2230 - 3 Credits

Introduction to simulation and serious game design, which may include military, academic, medical and training applications. Recommended: Computer Information Systems 1200 (3 lecture hours)

Cross-Platform Game Design

CIS 2240 - 3 Credits

Development factors considered when designing a computer game across multiple platforms and devices. Topics include game design elements and development tools. Game platforms will be analyzed. Recommended: Computer Information Systems 1200 (3 lecture hours)

Multiplatform Game Programming

CIS 2250 - 3 Credits

Game programming for multiplatform development. Topics include player controls, sound, music, and animation. Prerequisite: Computer Information Systems 2541 or Computer Information Systems 2561 or equivalent (3 lecture hours)

Advanced Multiplatform Game Programming

CIS 2252 - 3 Credits

Advanced programming for multiplaforms such consoles, phones, tablets, and/or hand-held devices. Prerequisite: Computer Information Systems 2250 or equivalent (3 lecture hours)

Game Programming Cross-Platform

CIS 2260 - 3 Credits

Development factors considered when programming a computer game across multiple platforms and devices. Topics include memory, storage, system configuration, and development tools. Current game platforms will be analyzed. Recommended: C++ Programming experience. (3 lecture hours)

JavaScript and Advanced HTML

CIS 2320 - 3 Credits

Creation of web pages using a combination of HTML, DHTML and JavaScript. Includes functions, event handling, control structure, Windows, form validation, animation, cookies and debugging. Prerequisite: Computer Information Systems 1310 and Computer Information Systems 1400 or consent of instructor (3 lecture hours)

Introduction to XML

CIS 2330 - 3 Credits

An exploration of extensible Markup Language (XML) Web technology, highlighting the power of XML to structure data without regard to how the data will be presented. Prerequisite: Computer Information Systems 1310 or consent of instructor (3 lecture hours)

Advanced XML

CIS 2331 - 3 Credits

Advanced study of eXtensible Markup Language (XML) Web technology. Covers latest XML technologies relating to XML document validation, query and processing. Also includes formal XML data models, XQuery, XSLT, and Document Object Model (DOM). Prerequisite: Computer Information Systems 2330 with a grade of C or better, or equivalent or consent of instructor (3 lecture hours)

AJAX

CIS 2335 - 4 Credits

Advanced study in AJAX (Asynchronous JavaScript and XML) web development. Emphasis is on understanding and implementing basic AJAX techniques to develop highly responsive web pages. Students will examine the use of essential client-side libraries to implement AJAX applications that enhance the user experience and support effective application architecture. Prerequisite: Computer

Computer Information Systems

Information Systems 2320 with a grade of C or better, or equivalent and Computer Information Systems 2330 with a grade of C or better, or equivalent or consent of instructor. (4 lecture hours)

Common Gateway Interface (CGI)/Perl

CIS 2340 - 4 Credits

Introduction of CGI/Perl, a portable cross-platform, object-based scripting language using the Unix/Linux platform to write Perl scripts and use modules from the perl module library. Includes simple data types, standard and file input/output, flow control, lists and arrays, regular expressions, subroutines and functions, objects and modules, Perl Database Interface (DBI), process management, security, and introduction to the Common Gateway Interface (CGI) and client-server applications. Prerequisite: Computer Information Systems 1450 and any Computer Information Systems 2000-level programming language or consent of instructor (4 lecture hours)

Introduction to ASP.NET

CIS 2350 - 4 Credits

Introduction to web server programming. Includes server programming models, processing forms, creating dynamic web applications, working within the server application environment, debugging web applications, integrating with the file system and other components, interacting with data sources and other web services, using server programming tools, and developing web server applications. Prerequisite: Computer Information Systems 1310 and Computer Information Systems 1400 or consent of instructor (4 lecture hours)

Intro to PHP Programming Language

CIS 2360 - 4 Credits

Introduces students to the PHP scripting language. Covers history of PHP and compares PHP with dynamic content alternatives such as Perl and CGI. Covers creation of basic PHP scripts, self referring forms, HTTP headers, passing of PHP variables via the URL, debugging, PHP functions, PH flow control and configuration. Prerequisite: Computer Information Systems 1400 with a grade of C or better or equivalent or consent of instructor (4 lecture hours)

Introduction to COBOL Programming

CIS 2411 - 4 Credits

Introduction to business programming on medium-to-large scale computers using COBOL. Emphasizes program structure, language syntax, sequential file processing, table handling, sorting procedures, and report logic with control breaks. Prerequisite: Computer Information Systems 1400 or consent of instructor (4 lecture hours)

Microprocessor Assembly Language

CIS 2420 - 4 Credits

Introduction to the Assembly language of the Intel microprocessor-based microcomputer. Includes the architecture of the microprocessor, the instruction set, memory organization, data representation, and data manipulation. Recommended: Any computer programming experience. (4 lecture hours)

Mainframe Assembly Language

CIS 2430 - 4 Credits

Introduction to mainframe assembly language for IBM and IBM-compatible mainframe computer systems. Includes the architecture of the mainframe microprocessor, the instruction set, memory organization, data representation and data manipulation. Prerequisite: Computer Information Systems 1400 and any Computer Information Systems 2000-level programming language course or consent of instructor (4 lecture hours)

Shell Programming for Unix/Linux

CIS 2440 - 3 Credits

Introduction to shell programming. Covers a variety of popular shells used in both UNIX and LINUX operating systems. Includes file security and permissions, filename substitution, shell standard input and output, redirection, file input and output, regular expressions, utilities such as grep, awk, sed and the login environment. Emphasis on shell programming, user defined and shell variables, flow control structures, shell functions, shell built-in commands, and the writing and executing of shell scripts. Prerequisite: Computer Information Systems 1450 and any Computer Information Systems 2000 level-programming language course (3 lecture hours)

UNIX System Administration

CIS 2450 - 3 Credits

Advanced course in the administration and maintenance of the UNIX operating system. Emphasizes UNIX system installation, management and maintenance, users' account control, file system and services, system performances, and security. Prerequisite: Computer Information Systems 1450 and Computer Information Systems 1600 or consent of instructor (2 lecture hours, 2 lab hours)

LINUX System Administration

CIS 2455 - 3 Credits

Computer Information Systems

Advanced course in the administration and maintenance of the LINUX operating system. Emphasizes LINUX system installation, management and maintenance, users' account control, file system and services, system performances, and security. Prerequisite: Computer Information Systems 1450 and Computer Information Systems 1600 or consent of instructor (2 lecture hours, 2 lab hours)

FORTRAN for Scientific Programming Appl

CIS 2480 - 3 Credits

Comprehensive coverage of the FORTRAN programming language. Emphasis on design, programming and documentation of scientific applications, including statistical analysis,curve fitting, optimization and engineering, and scientific modeling applications. Prerequisite: Mathematics 2231 (or college equivalent) (3 lecture hours)

C++ for Science and Engineering

CIS 2485 - 3 Credits

Development and application of the C++ language. Emphasis on object- oriented design, programming and documentation of scientific applications. Includes statistical analysis,curve fitting, optimization and engineering, and scientific modeling applications. Topics include language format and syntax, functions, data-storage classes, arrays, structures, introduction to user-defined classes, inheritance and polymorphism. Prerequisite: Mathematics 2231 or college equivalent (3 lecture hours)

Adv Graphical User Interface Programming

CIS 2510 - 4 Credits

Advanced topics in event driven programming in the Windows environment. Prerequisite: Computer Information Systems 1510 with a grade of C or better or consent of instructor. (4 lecture hours)

Visual Basic .NET I

CIS 2521 - 4 Credits

Visual Basic .NET (VB.NET), a graphical user interface programming language, .NET Framework, Visual Studio .NET (VS.NET), object-oriented/event-driven programming, object-oriented programming (OOP)terminology, ActiveX Data Object (ADO).NET, and Active Server Page (ASP).NET. Emphasis on using .NET managed code. Prerequisite: Computer Information Systems 1510 with a grade of C or better, or equivalent or consent of instructor (4 lecture hours)

C++ Language Programming

CIS 2541 - 4 Credits

Introduces C++ Language Programming, an object-oriented programming language. Includes C++ data types, operators, expressions, control structures, functions, arrays, pointers, strings, Abstract Data Types (ADTs), classes, inheritance, polymorphism, virtual functions and file input/output. Emphasis on building the foundation to understand the capabilities of the C++ programming language and the skills to develop practical procedural and object-oriented applications. Prerequisite: Computer Information Systems 1400 or consent of instructor (4 lecture hours)

Adv C++ With Data Structure Application

CIS 2542 - 4 Credits

Covers advanced C++ Programming Language features with data structure applications. Includes object-oriented applications using classes, inheritance, encapsulation, polymorphism and other advanced C++ language features. Emphasis on the use of vectors, pointers, dynamic memory, lists, iterators, stacks, queues, linked lists, binary trees, associative containers, hashing, sequential file access, direct file access, recursive algorithms, sorting and searching techniques. Prerequisite: Computer Information Systems 2541 or consent of instructor (4 lecture hours)

Introduction to MS Visual C++ .NET Prog

CIS 2551 - 4 Credits

Introduction to Visual C++ Graphical User Interface (GUI) programming, the Microsoft .NET Visual Studio, .NET Framework Library, and the Common Language Runtime (CLR). Includes Visual C++ Managed Extensions, control structures, methods, arrays, classes, Active Server Pages (ASP) .NET Web Services, database access, GUI windows forms, windows control, event handling/delegates, files and streams, multithreading, namespaces and assemblies. Emphasis is on building the foundation necessary to thoroughly understand the capabilities of .NET and object-oriented, event-driven client/server GUI software development. Prerequisite: Computer Information Systems 2542 (4 lecture hours)

Object-Oriented Program Development With

CIS 2552 - 4 Credits

Introduction to application development using Visual C++ .NET. Includes client/server model, the common object model, Active Template Library (ATL) components, Active Template Library servers, Active Data Object (ADO) and Object Data Base Connectivity (ODBC) technologies, Internet programming, Visual Basic integration, C# integration, managed and unmanaged C++, and Extensible Markup Language (XML) services. The Unified Modeling Language (UML) is introduced

as a design tool. Prerequisite: Computer Information Systems 2551 or consent of instructor (4 lecture hours)

Introduction to C# .NET

CIS 2561 - 4 Credits

Introduction to C# .NET (pronounced C-sharp dot NET), an object-oriented, Graphical User Interface .NET programming language. Designed to introduce the .NET platform, the .NET Framework Library, C# control structures, methods, arrays, object-oriented programming, graphical user interface, strings, regular expressions, graphics, files, streams and data base access. Emphasis is on building the foundation necessary to understand the capabilities of the C# programming language and the skills to develop Internet and World-Wide-Web based client/server applications. Prerequisite: Computer Information Systems 1510 or Computer Information Systems 2541 or consent of instructor (4 lecture hours)

Advanced C# Programming

CIS 2562 - 4 Credits

Covers advanced C# programming language features with data structure applications. Includes object oriented applications using classes, inheritance, encapsulation, polymorphism, and other advanced features. Emphasis on the use of Windows Communication Foundation (WCF) Web Services, rich Internet applications, multimedia, data structures, generics, collections, and ASP.NET. Prerequisite: Computer Information Systems 2561 with a grade of C or better, or equivalent or consent of instructor. (4 lecture hours)

Introduction to Java

CIS 2571 - 4 Credits

Introduction to object-based problem solving in the Java language. Includes encapsulation, class design, objects, polymorphism, and Graphical User Interface (GUI) components. Prerequisite: Computer Information Systems 1400 with a grade of C or better, or equivalent or consent of instructor (4 lecture hours)

Collections in Java

CIS 2572 - 4 Credits

Development of applications using the Java language. Emphasis on applications involving exception handling, images, animation, files, streams, recursion, generics, collections, containers, menus, toolbars, borders, layout managers, graph applications and data structures. Prerequisite:

Computer Information Systems 2571 with a grade of D or better or equivalent or consent of instructor (4 lecture hours)

Advanced Java Technologies

CIS 2573 - 4 Credits

Development of applications using advanced Java technologies, including observers, multi-document interfaces, model-view-controllers, multi-threading, networking, Remote Method Invocation (RMI), Java Beans, Java database connectivity, servlets, and Java Server Pages (JSP). Prerequisite: Computer Information Systems 2572 with a grade of D or better or equivalent or consent of instructor (4 lecture hours)

Objective C

CIS 2591 - 4 Credits

Introduction to Objective-C programming language. Students will use XCode to enter, develop, and debug their programs under Mac OSX for iPhone/iPad application development. Prerequisite: Computer Information Systems 1400 with a grade of C or better, or equivalent or consent of instructor (4 lecture hours)

iPhone/iPad Development

CIS 2592 - 4 Credits

Introduces iPhone /iPad Application Programming environment and use of Apple?s System Development Kit (SDK) to develop and deploy applications on iPhone /iPad. Overview of Objective C, Cocoa Touch, User Interface (UI) framework, and use of various Application Program Interfaces (API) to build applications. Students will leave this class with knowledge to write simple iPhone/ iPad application. Prerequisite: Computer Information Systems 2541 or equivalent, or consent of instructor (4 lecture hours)

Android Application Development

CIS 2593 - 4 Credits

Introduces design and programming principles used in creating applications for Android, an open source software stack for mobile devices. Overview of the Android Application Framework, SDK (Software Development Kit), and guidelines for application design. Students will be able to create simple Android applications. Prerequisite: Computer Information Systems 2571 or equivalent, or consent of instructor (4 lecture hours)

Computer Information Systems

Adv iPhone/iPad Application Development

CIS 2594 - 3 Credits

Advanced course in iPhone/iPad application programming environment and use of Apple's System Development Kit (SDK) to develop and deploy data driven applications on iPhone/iPad. Topics include data modeling, databases using core data, SQLite and MySQL, interfaces to web services, database applications, debugging, application design and implementation of data driven applications. Prerequisite: Computer Information Systems 2592 or equivalent, or consent of instructor (3 lecture hours)

Advanced Android Application Development

CIS 2595 - 4 Credits

Builds upon basic design and programming principles used in creating applications for Android, an open source software stack for mobile devices. Topics include creation of Android applications using advanced features, asynchronous processing, services, broadcasts, notifications, persistent data storage, mobile networking, advanced graphics and user interface features. Prerequisite: Computer Information Systems 2593 or equivalent or consent of instructor (4 lecture hours)

Network Security

CIS 2610 - 3 Credits

Advanced administration course for Network Security on the Windows network operating system. Includes basics of Firewall, Intrusion Detection (IDS), virus scanning, attack/prevention methodologies, advanced security scenarios, Virtual Private Network (VPN), remote access, wireless security, security policy, and Microsoft security solutions. Prerequisite: Computer Information Systems 1630 with a grade of C or better or equivalent or consent of instructor (2 lecture hours, 2 lab hours)

Exchange Server

CIS 2620 - 3 Credits

Advanced administration course for Exchange Server, the mail system on the Windows network operating system. Includes installation and configuration of basic Exchange Server features, various Outlook clients, and advanced Exchange Server features. Create, publish and manage public folders, monitor Exchange Server performance and status, integrate Exchange with Microsoft Mail, setup and configure Exchange/Internet security, and setup and maintain users and distribution lists. This course may be taken four times for credit as new versions are released. Prerequisite: Computer Information Systems 1620 with a grade of C or better, or equivalent or consent of instructor (2 lecture hours, 2 lab hours)

MS SQL Server Administration

CIS 2630 - 3 Credits

Administration course for Microsoft Standard Query Language (MS SQL) Server, database system on Windows server network operating system. Includes installation and configuration of SQL Server, configuration of SQL Extensible Markup Language (XML) support in Internet Information Server (IIS), enterprise manager, and creating databases. Covers SQL database structure, physical data storage, transaction architecture, query analyzer, import and export data, profiler, bulk copy program, data transformation services, and replication. This course may be taken four times for credit as new versions are released. Prerequisite: Computer Information Systems 1620 with a grade of C or better or equivalent or consent of instructor (2 lecture hours, 2 lab hours)

MS Sharepoint Portal

CIS 2650 - 3 Credits

Administrative course for a local intranet system based on Microsoft Sharepoint Portal. This course covers tasks in planning, installing, configuring, and maintaining an intranet site. This course may be taken four times for credit as new versions are released. Prerequisite: Computer Information Systems 1620 with a grade of C or better, or equivalent or consent of instructor. (2 lecture hours, 2 lab hours)

Database Management

CIS 2710 - 4 Credits

Surveys micro, mini and mainframe database(DB) systems including physical and logical structures, data languages, and database design and administration. Includes client/server, Internet DB environments, data warehousing, Object-Oriented data modeling, On-line Analytic Processing (OLAP) and DB development. DB commercially available database systems are discussed and hands-on experience is given using a specific database system. Prerequisite: Any college-level programming class or consent of instructor (4 lecture hours)

Structured Query Language (SQL) I

CIS 2720 - 3 Credits

Introduction to Structured Query Language (SQL) programming. Includes concepts of relational databases and SQL programming commands. Uses SQL statements to create and maintain database objects. One or more DataBase Management Systems (DBMS) are used. No prior SQL programming knowledge is required. Prerequisite: Computer Information Systems 1230 and Computer Information Systems 2710 or equivalent, or consent of instructor (3 lecture hours)

Computer Information Systems

Enterprise SQL Application

CIS 2725 - 3 Credits

Application of Structured Query Language (SQL) command statements on a vendor-specific Enterprise Database Management System (DBMS). Creation, maintenance and deployment of a database in an enterprise network environment. Covers writing stored procedures, triggers, Windows applications, Web applications. Essential Administrative information for developers is also introduced. Prerequisite: Computer Information Systems 2720 or equivalent, or consent of instructor (3 lecture hours)

Enterprise Database Development

CIS 2730 - 3 Credits

Apply Structured Query Language (SQL) command statements on a vendor-specific Enterprise Database Management System (DBMS). Creation, maintenance and deployment of a database in an enterprise network environment. Essential administrative information for developers is also introduced. Prerequisite: Computer Information Systems 2720 or equivalent, or consent of instructor (3 lecture hours)

Introduction to System Analysis & Design

CIS 2770 - 3 Credits

Concepts, tools and techniques required to analyze and design business information systems. Includes both Structured and Object approaches in covering the Systems Development Life Cycle (SDLC). Information systems in organizations, Structured and Object modeling, project plan development, financial models for cost/benefit analysis project failure analysis, and risk assessment models. Recommended: Any 2000-level programming course, advanced spreadsheet course or advanced database course. (3 lecture hours)

Information Technlogy Project Management

CIS 2775 - 3 Credits

Introduces principles of Project Management as defined by the Project Management Institute (PMI). Students gain hands-on experience with information technology project management procedures to increase basic familiarity with state-of-the-art project management processes. Prerequisite: Computer Information Systems 1400 with a grade of C or better, or equivalent or consent of instructor (3 lecture hours)

Systems Analyst Simulation

CIS 2790 - 3 Credits

Case study and team-based simulation techniques using estimating tools and project management techniques to analyze client opportunities, develop payback scenarios, work plans and deliverables. Prerequisite: Computer Information Systems 2770 with a grade of C or better, or consent of instructor (3 lecture hours)

Experimental/Pilot Class

CIS 2840 - 1-6 Credits

Exploration and analysis of topics within the discipline. This course is used to pilot a proposal for a permanent discipline course. This course may be taken four times for credit as long as different topics are selected. Prerequisite: At least one course in the Computer Information Systems discipline (1 to 6 lecture hours)

Internship (Career & Technical Ed)yCoop Ed/Internship Occup

CIS 2860 - 1-4 Credits

Course requires participation in Career and Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.

Internship Advanced (Career & Tech Ed)

CIS 2865 - 1-4 Credits

Continuation of Internship (Career and Technical Education). Course requires participation in Career & Technical Education work experience with onsite supervision. Internship learning objectives are developed by student and faculty member, with approval of employer, to provide appropriate work-based learning experiences. Credit is earned by working a minimum of 75 clock hours per semester credit hour, up to a maximum of four credits. Prerequisite: 2.0 cumulative grade point average; 12 semester credits earned in a related field of study; students work with Career Services staff to obtain approval of the internship by the Associate Dean from the academic discipline where the student is planning to earn credit.