COMPUTER STUDIES & INFO. PROC. (COMI)

For a list of courses that meet the Programming Language Requirement, please see this (https://catalog.ccri.edu/academic-information/general-education/course-attributes/#Programming/) page.

COMI 1000 - Computer Basics
(1 Credit)
This course is designed for students with no familiarity with computers. It covers topics such as working with Windows and the Windows desktop, file handling, email and the Internet (browsing and searching).
Lab: 4 hours

COMI 1100 - Introduction to Computers
(3 Credits)
This computer literacy course provides a comprehensive introduction to the principles of computers and information processing. Students are introduced to the operation and terminology of computer systems as well as certain selected application software packages such as word processing, spreadsheets and presentation software. Note: Lecture and lab hours vary by instructor but total four hours per week.
Lecture: 3 hours, Lab: 1 hour

COMI 1150 - Programming Concepts
(3 Credits)
This course introduces important concepts and skills necessary for computer programming. Emphasis is on structured programming techniques and top-down design.
Lecture: 3 hours, Lab: 1 hour

COMI 1215 - Programming in C++
(3 Credits)
This is a comprehensive course in programming in C++. Topics include types, operators, expressions, control flow, functions, arrays, pointers, and file handling.
Lecture: 3 hours, Lab: 1 hour

Course completes the following requirements:
Computer Programming Rqmt

COMI 1225 - Programming in C#
(3 Credits)
This course covers the fundamentals of software development using Microsoft's Visual Studio C# object-orientated programming language. Data Structures, Methods, Classes, Decision Making, Iteration and Arrays are covered.
Lecture: 2 hours, Lab: 2 hours

Course completes the following requirements:
Computer Programming Rqmt

COMI 1240 - Object-Oriented Programming
(3 Credits)
This course introduces students to the fundamentals of designing and coding object-oriented programs. Basic topics such as objects, classes and class inheritance are discussed. Students write programs using one of the object-oriented languages.
Lecture: 3 hours, Lab: 1 hour

Prerequisite(s): COMI 1150 or COMI 1215 or COMI 1225 or COMI 1510 or COMI 2040

Course completes the following requirements:
Computer Programming Rqmt

COMI 1260 - Introduction to SQL
(3 Credits)
This course offers a foundation in the fundamentals of SQL. Particular attention is devoted to the use of ANSI-Standard SQL to construct and manipulate database objects. Students create database tables work with Functions and Operators, and generate SQL scripts to extract and manipulate data from the database.
Lecture: 3 hours, Lab: 1 hour

Course completes the following requirements:
Computer Programming Rqmt

COMI 1300 - Introduction to Data Analytics
(3 Credits)
This course provides an introduction to the concepts and procedures in Data Analytics. The course introduces students to the underlying skills required in the collection, manipulation, and analysis of data needed to begin the process of reporting and creating visualizations used in Data Analytics. An overview of data collection, cleansing, and manipulation of data for analysis and reporting are introduced and reviewed. Emphasis is placed on the tools used for statistical analysis and visualization such as: Excel, SQL (Structured Query Language), and Tableau.
Lecture: 2 hours, Lab: 2 hours

Course completes the following requirements:
Computer Programming Rqmt

COMI 1350 - Data Analytics: Tools & Visualization
(3 Credits)
This course provides students with the fundamental skills required to effectively manipulate and visualize data. The course covers the topics of statistical reasoning, hypothesis testing, regression analysis, and visualization methods used in Data Analytics. Emphasis is placed on utilizing a statistical programming language.
Lecture: 2 hours, Lab: 2 hours

Prerequisite(s): COMI 1150 and COMI 1300

Course completes the following requirements:
Computer Programming Rqmt

COMI 1410 - Personal Computer Software
(3 Credits)
This course introduces operational procedures for several standard data management software packages that utilize computer systems. Students construct and manipulate data files to produce clear, concise reports.
Lecture: 2 hours, Lab: 2 hours

COMI 1415 - Personal Computer Operating System
(1 Credit)
This module familiarizes students with operating system commands for the personal computer. Students are exposed to statements to enhance their computer operation abilities.
Lecture: 2 hours, Lab: 2 hours

COMI 1420 - Introduction to Spreadsheets
(1 Credit)
The purpose of this module is to introduce the operational procedures for a spreadsheet software package. Students construct and manipulate data files to produce clear and concise reports.
Lecture: 2 hours, Lab: 2 hours

COMI 1422 - Intermediate Spreadsheets
(1 Credit)
This module presents topics and functions, advanced database techniques and additional add-in topics. It focuses on conceptual features beyond the scope of beginning spreadsheet uses. Topics include utilizing additional spreadsheet features and macro planning and development.
Lecture: 2 hours, Lab: 2 hours

COMI 1425 - Advanced Spreadsheets
(1 Credit)
This module covers advanced topics using integrated spreadsheet software including macros, application design and menu building.
Lecture: 2 hours, Lab: 2 hours

COMI 1430 - Introduction to Database Software
(1 Credit)
This module introduces students to different methods of organizing and accessing computer files. Fundamentals of database design and management are covered.
Lecture: 2 hours, Lab: 2 hours

COMI 1432 - Intermediate Database Software
(1 Credit)
This module focuses on the creation and manipulation of data files to produce meaningful output using database software. Emphasis is on the presentation of queries, forms and reports.
Lecture: 2 hours, Lab: 2 hours

COMI 1440 - Presentation Software (PowerPoint)
(1 Credit)
This module focuses on the use of computer software that incorporates presentation as well as analytical graphics. Students create informative report documents and visual presentations using charts, graphs and/or pictures.
Lecture: 2 hours, Lab: 2 hours

COMI 1450 - WINDOWS Operating System
(3 Credits)
This course familiarizes students with the Windows operating system. Basic and advanced features of Windows are demonstrated. Students explore topics in system diagnostics and troubleshooting, networking, configuration, customization, and commonly used software tools as well as learning about new developments in Windows.
Lecture: 3 hours, Lab: 1 hour

COMI 1451 - Introduction to WINDOWS
(1 Credit)
This module familiarizes students with the graphical-user operating environment. Basic functions of Windows are demonstrated. Students do laboratory assignments to utilize the basic operating functions of Windows such as file handling, fonts, graphics, icons and screen control.
Lecture: 3 hours, Lab: 1 hour

COMI 1460 - Unix Operating System
(3 Credits)
This course covers basic command structures and syntax of the UNIX operating system and includes file and directory manipulation and shell scripts. Essential system administration topics and system administration shell scripts also are discussed as well as system startup/shutdown, account management and system backup of the UNIX operating system. This class covers advanced system administration topics including networking, security, printing systems and graphical-user interface of the UNIX operating system.
Lecture: 3 hours, Lab: 1 hour

COMI 1461 - Introduction to UNIX
(1 Credit)
This module exposes students to the basic command structures and syntax of the UNIX operating system. Content includes file and directory manipulation as well as use of shell scripts.
Lecture: 3 hours, Lab: 1 hour

COMI 1470 - Windows Programming Using C++
(3 Credits)
This course focuses on using C++ to design programs that run under the Windows operating system. It includes an overview of object-oriented concepts, creating Windows applications, capturing the mouse and keyboard, creating menus, dialog boxes and toolbars and single and multiple document interfaces.
Lecture: 3 hours, Lab: 1 hour

Course completes the following requirements:
Computer Programming Rqmt

COMI 1475 - Introduction to VISIO
(1 Credit)
This module introduces basic Visio tools. Students create and manipulate drawings and shapes, including flow charts, diagrams and organizational charts.
Lecture: 3 hours, Lab: 1 hour

COMI 1510 - Java Programming
(3 Credits)
This course introduces students to topics in programming and software design using the Java programming language. Specific topics reflect current technologies and might include an introduction to object-oriented program design, data analysis, and search and sort algorithms.
Lecture: 3 hours, Lab: 1 hour

Prerequisite(s): COMI 1150 or COMI 1215 or COMI 1225 or COMI 1240 or COMI 2040

Course completes the following requirements:
Computer Programming Rqmt

COMI 1640 - Introduction to Word Processing
(1 Credit)
This module introduces introductory word processing features such as creating, printing and editing a document. This course covers formatting documents including text and paragraphs. Students use spelling, grammar and auto-correct features and are introduced to headers, footers and tables in basic word processing documents.
Lecture: 3 hours, Lab: 1 hour

COMI 1750 - Web Development 1
(3 Credits)
This course provides an in-depth introduction to Hypertext Markup Language version 5 (HTML 5) and Cascading Style Sheets version 3 (CSS 3) emphasizing conformance to W3C (World Wide Web Consortium) specifications. Students begin by creating simple web pages and progress to include images, hyperlinks, tables, web forms, animations, and transitions. A portfolio website will be created, including examples of attempts at cloning existing websites.
Lecture: 2 hours, Lab: 2 hours

Course completes the following requirements:
Computer Programming Rqmt

COMI 1751 - Introduction to HTML
(1 Credit)
This module introduces students to the use of the HTML language and the basic features of HTML scripting.
Lecture: 3 hours, Lab: 1 hour

Course completes the following requirements:
Computer Programming Rqmt

COMI 1755 - Fundamentals XML eXtensible Markup Language
(3 Credits)
This course introduces fundamentals of XML languages to define and validate data, use schemas, transformations, linking, VML, SMIL and CSS. XML files are used with different editing software. Assignments are used to demonstrate XML activity at students' websites.
Lecture: 3 hours, Lab: 1 hour

Course completes the following requirements:
Computer Programming Rqmt

COMI 1770 - Web Development 2
(3 Credits)
This course provides an in-depth introduction to a variety of technologies used in modern web development. Building on a base of Hypertext Markup Language version 5 (HTML 5) and Cascading Style Sheets version 3 (CSS 3), students will explore JavaScript, JQuery and related technologies for building dynamic web sites. Students will also be introduced to server-side scripting and best practices for web hosting.
Lecture: 2 hours, Lab: 2 hours

Prerequisite(s): COMI 1750

COMI 1800 - Computer Networking Software Linux
(3 Credits)
This course presents the administration of a LINUX network. Topics include installing, using, administering and maintaining a LINUX network.
Lecture: 3 hours, Lab: 1 hour

COMI 1840 - Microsoft Windows Server
(3 Credits)
This course presents the terminology and operating principles of Microsoft Windows server software. Students learn how to use, install and maintain Microsoft Windows networking software.
Lecture: 3 hours, Lab: 1 hour

COMI 2010 - Client-Side Scripting Languages
(3 Credits)
This course will introduce scripting languages and their use in programming for the World Wide Web with a focus on client-side scripting. It will include fundamental programming topics such as memory concepts, control structures and writing functions. It also will include an introduction to both client-side and server-side scripts.
Lecture: 3 hours, Lab: 1 hour

Course completes the following requirements:
Computer Programming Rqmt

COMI 2015 - Introduction to Microsoft Project
(1 Credit)
This module introduces students to project management software, an essential tool used by most information technology environments. Upon completion of this course, students are able to create and analyze projects using Microsoft Project Manager.
Lecture: 3 hours, Lab: 1 hour

COMI 2020 - Network Security Software Fundamentals
(3 Credits)
This course introduces students to networking security, a critical knowledge point for technology professionals. This course provides students with introductory concepts and technical skills needed to create and maintain a secure network environment.
Lecture: 3 hours, Lab: 1 hour

COMI 2031 - Computer Support: Concepts
(3 Credits)
This course introduces students to basic technical concepts, functions and support systems.
Lecture: 2 hours, Lab: 2 hours

COMI 2033 - Computer Support: Network and Virtual Machine
(3 Credits)
This course focuses on software support tools and how to determine which tools are best suited for particular environments as well as methods to assess the success and effectiveness of these tools.
Lecture: 2 hours, Lab: 2 hours

COMI 2035 - Introduction to Computer Forensics
(3 Credits)
This course starts with the basics of computer technology to build a foundation for understanding where evidence can be found. It introduces students to the technology and procedures of acquiring and analyzing digital evidence taken from computers. This course also exposes students to the software being used in the industry.
Lecture: 2 hours, Lab: 2 hours

COMI 2036 - Introduction to Computer Ethics
(3 Credits)
This course explores the ethical impact of computer technology on the world, as well as the rules and regulations that ensure the proper use of technology. Internet crime, privacy protection and first amendment rights that protect our freedoms in cyberspace are closely examined.
Lecture: 2 hours, Lab: 2 hours

COMI 2037 - Introduction to Cybersecurity
(3 Credits)
This course introduces students to the opportunity that exists in the cybersecurity field. Topics such as certified ethical hacking, cyber threats and vulnerabilities and cryptography are introduced.
Lecture: 2 hours, Lab: 2 hours

COMI 2040 - Beginning Game Programming
(3 Credits)
This course will introduce the student to game development and the beginning principles of game programming.
Lecture: 2 hours, Lab: 2 hours

Prerequisite(s): COMI 1150

Course completes the following requirements:
Computer Programming Rqmt

COMI 2055 - Introduction to Virtual Computing
(1 Credit)
This five-week class provides an introduction to computer virtualization concepts which include hands-on activities of installing, configuring and using virtualization products.
Lecture: 2 hours, Lab: 2 hours

COMI 2225 - Advanced Programming in C#
(3 Credits)
This course introduces the student to advanced topics in programming and software design using Microsoft's C# programming language. Topics covered include classes, abstract classes, inheritance, ADO.Net data driven applications using a database, ASP.Net for Web applications, collections and file streams.
Lecture: 3 hours, Lab: 1 hour

Prerequisite(s): COMI 1225 or COMI 1215 or COMI 1510

Course completes the following requirements:
Computer Programming Rqmt

COMI 2510 - Advanced Java Programming
(3 Credits)
This course introduces students to advanced topics in programming and software design such as graphical modeling techniques and algorithms and analysis as well as current techniques in interface design and user interaction. Specific topics reflect current technologies and might include inheritance and polymorphism in object-oriented design and graphical user interfaces and the event loop.
Lecture: 3 hours, Lab: 1 hour

Prerequisite(s): COMI 1510

Course completes the following requirements:
Computer Programming Rqmt

COMI 2520 - Data Structures and Algorithms
(3 Credits)
This course introduces the student to data structures, algorithm design, and space and time complexity analysis. Topics include common data structures such as linked lists, stacks, queues, binary trees, searching and sorting algorithms, maps, and hash tables, and techniques of run-time complexity analysis such a Big O notation.
Lecture: 3 hours, Lab: 1 hour

Prerequisite(s): COMI 2510

Course completes the following requirements:
Computer Programming Rqmt

COMI 2530 - Introduction to Software Engineering
(3 Credits)
This course introduces students to important concepts in software engineering. Students will learn how to take a project through all stages of the Software Development Life Cycle, including requirements analysis and implementation. Topics may include Unified Modeling Language (UML), Design Patterns, Version Control Systems, Agile, Validation/ Correctness, and developing an understanding of current best practices in software engineering.
Lecture: 3 hours, Lab: 2 hours

Prerequisite(s): COMI 2510 (may be taken concurrently)

Course completes the following requirements:
Computer Programming Rqmt

COMI 2900 - Data Analytics Internship
(3 Credits)
The opportunity to implement the skills and knowledge learned in the classroom through “hands on” experience in a business setting is a critical aspect of gaining a thorough understand of how Data Analytics is utilized. To complete the course, the student is required to spend an average of 10 hours per week of field work under the guidance of industry professionals. This work experience will constitute the practicum and capstone for the program. The student will be required to produce a portfolio relating to the work experience and how it is connected to the content of this program. Students will keep a working journal during the semester to help assess the progress of their experience.
Lecture: 2 hours, Other: 9 hours

Prerequisite(s): COMI 1350 (may be taken concurrently)