

# COMPUTER/INFORMATION TECH (CMPL)

# Course numbers with the # symbol included (e.g. #400) have not been taught in the last 3 years.

## CMPL 402 - Excel

**Credits:** 2

A comprehensive examination of spreadsheet software. Students will build a variety of spreadsheets using simple and complex formulas, functions, graphics, database features, sorts, linkages within spreadsheet and between spreadsheets, and macros. Basic Algebra and knowledge of computer operating system required. This course is valuable for all Business students and Computer Science Students. It provides competency and fluency in the standard software used for business analysis and as a link between large computer software systems and the end user.

**Equivalent(s):** CMPL 502G, MGMT 502G

**Grade Mode:** Letter Grading

## CMPL 415 - Programming Fundamentals

**Credits:** 4

The course is designed to provide students with a sound background in structured programming logic and design. These foundational concepts can be applied regardless of which programming languages a student eventually uses to write programs. The demonstration language for programming concepts will be Microsoft Visual Basic. The course covers the key mathematical and logical constructs that are the basis of much programming. Topics include the software development life cycle, particularly the programming phase; structured programming techniques; problem-solving and algorithm development; decision control structures, including selection (IF/CASE) and repetition (looping) structures; variables and arrays; and data structures. Proficiency in Excel is necessary for success in this course.

**Prerequisite(s):** MTH 402 with a minimum grade of D- or MATH 502G with a minimum grade of D-.

**Equivalent(s):** CMPL 515G

**Grade Mode:** Letter Grading

## CMPL 512 - Advanced Software Tools

**Credits:** 4

This is a project-oriented software applications course to help the student gain competency with advanced features of office productivity software and to introduce more advanced database application concepts. NOTE: Excel is recommended for success in this course.

**Equivalent(s):** CMPL 612G

**Grade Mode:** Letter Grading

## CMPL 525 - Foundations of Cybersecurity

**Credits:** 4

This course addresses the foundations of cybersecurity, including threats and vulnerabilities as well as the tools, technologies, and strategies used to manage those threats and vulnerabilities.

**Attributes:** Environment, TechSociety(Disc)

**Equivalent(s):** CMPL 525G

**Grade Mode:** Letter Grading

## CMPL 530 - Introduction to Programming with Python

**Credits:** 4

In this introductory programming with Python course, students will have the opportunity to learn about data types, control flow, object-oriented programming, and graphical user interface-driven applications. The examples and problems used in this course are drawn from diverse areas such as text processing, simple graphics creation, and image manipulation. This course will explore the large standard library of Python 3, which supports many common programming tasks.

**Prerequisite(s):** CMPL 415 with a minimum grade of D- or CMPL 515G with a minimum grade of D-.

**Equivalent(s):** CMPL 530G

**Grade Mode:** Letter Grading

## CMPL 540 - Best Practices in Website Design

**Credits:** 2

This hands-on course outlines the fundamentals of web design. Students consider ethical use of information and best practices when creating websites using free web page design programs. Working with a basic design program, students explore layout, graphics, text, color, links, tables, frames and content. Students use website design software to create a simple website of their own, as well as examine publication and promotion options. NOTE: Basic computer competence is required. This course is not appropriate for Information Technology majors and may not be combined with other Information Technology courses to satisfy degree requirements.

**Equivalent(s):** CMPL 540G

**Grade Mode:** Letter Grading

## CMPL 544 - Special Topics: Lower Level

**Credits:** 1-4

A study of current and variable topics in Computer Science. Course content changes from term to term.

**Repeat Rule:** May be repeated up to unlimited times.

**Equivalent(s):** CMPL 544G

**Grade Mode:** Letter Grading

## CMPL 614 - Computer and Network Systems

**Credits:** 4

This course offers a practical study of the hardware and software of modern computing systems and networks. Course topics include operating system software by studying the functions and interactions of computer and peripheral components such as central processing units (CPU), memory, storage, print engines, etc. Learners also study the workings of network components such as protocols, hubs, routers, and switches. Through exposure to a mix of theory, extensive vocabulary, and specific knowledge about trends in contemporary systems, learners develop skills to effectively communicate with others regarding the specification, purchase, and installation of an office or home computer system/network.

**Prerequisite(s):** CMPL 415 with a minimum grade of D- or CMPL 515G with a minimum grade of D- or CMPL 512 with a minimum grade of D- or CMPL 612G with a minimum grade of D-.

**Equivalent(s):** CMPL 614G

**Grade Mode:** Letter Grading

**CMPL 620 - Virtualization and Cloud Computing****Credits:** 4

In this course students will have the opportunity to learn the fundamental concepts, components, infrastructure, as well as security and privacy considerations of cloud computing and virtualization systems. Course activities will address the skills and knowledge necessary to install, configure, and manage virtual environments and how to effectively plan, implement, and manage cloud computing.

**Prerequisite(s):** (CMPL 614 with a minimum grade of D- or CMPL 614G with a minimum grade of D-) and (CMPL 525 with a minimum grade of D- or CMPL 525G with a minimum grade of D-).

**Equivalent(s):** CMPL 620G

**Grade Mode:** Letter Grading

**CMPL 622 - Human Computer Interaction****Credits:** 4

This course builds an understanding of human behavior with interactive objects, focusing on how to develop and evaluate interactive software using a human-centered approach. This includes examining the many different types of interactive software, understanding the principles of effective graphical user interface design, evaluating human-centered software and software development and exploring aspects of collaboration and communication as they affect individual and group interaction with software systems.

**Attributes:** Environment, TechSociety(Disc); Writing Intensive Course

**Equivalent(s):** CMPL 622G

**Grade Mode:** Letter Grading

**CMPL 637 - Intermediate Programming with Python****Credits:** 4

Students will have the opportunity to take their Python programming skills to the next level with this intermediate course. This course includes a review of basic concepts such as lists, strings, and dictionaries, and more advanced topics such as threading, multiprocessing, context managers, and generators.

**Prerequisite(s):** CMPL 530 with a minimum grade of D- or CMPL 530G with a minimum grade of D-.

**Equivalent(s):** CMPL 537G

**Grade Mode:** Letter Grading

**CMPL 641 - Database Management Systems****Credits:** 4

This course provides prospective users of data base management systems with a solid theoretical and practical foundation for using these systems in a variety of contemporary organizational environments. The course traces the nature of DBMS from general conceptual structures, through the design, interface and implementation of actual database systems. The course includes a mix of classical database theory with practical hands-on application using state of the art DBMS packages; similar to those used today by large and small organizations alike to run their information systems.

**Prerequisite(s):** (CMPL 415 with a minimum grade of D- or CMPL 515G with a minimum grade of D-) and (CMPL 512 with a minimum grade of D- or CMPL 612G with a minimum grade of D-).

**Equivalent(s):** MGMT 622G

**Grade Mode:** Letter Grading

**CMPL 642 - Systems Analysis and Design****Credits:** 4

This hands-on course introduces students to the role of the systems analyst in the development of information systems for organizations. The systems analyst is a problem-solver. As such, this course emphasizes development of effective solutions and communicating those solutions to the development team. Use of accepted design techniques, project management approaches, written and verbal communication, collaboration and teamwork, and organizational tools prepares the learner for the many demands of an entry-level systems analyst.

**Prerequisite(s):** (MTH 504 with a minimum grade of D- or MATH 504G with a minimum grade of D-) and (CMPL 512 with a minimum grade of D- or CMPL 612G with a minimum grade of D- or CMPL 415 with a minimum grade of D- or CMPL 515G with a minimum grade of D-).

**Equivalent(s):** MGMT 623G

**Grade Mode:** Letter Grading

**CMPL 643 - Managing Information Technology****Credits:** 4

This course helps students understand the important role of information technology in business strategy. Emphasizing the management of information technology rather than specific technical aspects, students explore the alignment of information technology with organizational goals, efficiencies gained through technology solutions, project management and the implementation of information technology, and organizational and industry changes driven by information technology. Investments in information technology for competitive advantage, the positioning of information technology in the organization, the pace of innovation in a digital economy, and emerging trends in information technology are discussed.

**Prerequisite(s):** MGMT 410 with a minimum grade of D- or MGMT 500G with a minimum grade of D- or PADM 500 with a minimum grade of D- or PADM 500G with a minimum grade of D- or MGMT 501G with a minimum grade of D- or MGMT 566 with a minimum grade of D- or MGMT 566G with a minimum grade of D-.

**Equivalent(s):** MGMT 624G

**Grade Mode:** Letter Grading

**CMPL 644 - Special Topics: Upper Level****Credits:** 1-4

The study of current and variable topics in Computer Science. Course content changes from term to term. It is expected that the learner will have prior coursework or experience in the subject area.

**Repeat Rule:** May be repeated up to unlimited times.

**Equivalent(s):** CMPL 644G

**Grade Mode:** Letter Grading

**CMPL 660 - Mobile Application Development****Credits:** 4

This course introduces students to programming technologies, design, and development related to mobile applications. Topics include application user interfaces, styling, navigation, simple animation, and Android and iOS-specific components and APIs. Students will program cross-platform mobile applications using JavaScript and React Native, an open-source user interface framework. Through course activities, students will have the opportunity to develop the skills needed to create basic applications for mobile devices.

**Prerequisite(s):** CMPL 530 with a minimum grade of D- or CMPL 530G with a minimum grade of D-.

**Equivalent(s):** CMPL 633G

**Grade Mode:** Letter Grading

**CMPL 665 - Web Application Development****Credits:** 4

This course covers modern website design and development using Hypertext Markup Language (HTML), Cascading Style Sheets (CSS), and JavaScript. Students will learn the history and overall structure of the Internet and its key paradigms and technologies. Students will also learn how to design and code websites for various audiences and client technologies. The course will also cover current website management technologies including content management systems, JavaScript libraries, and website development frameworks.

**Prerequisite(s):** CMPL 530 with a minimum grade of D- or CMPL 530G with a minimum grade of D-.

**Equivalent(s):** CMPL 638G

**Grade Mode:** Letter Grading

**CMPL 725 - Advanced Programming with Python****Credits:** 4

This course introduces advanced programming skills and focuses on the core concepts of object-oriented programming (OOP) using Python, a high-level language. OOP shifts the focus from thinking about code as a sequence of actions, to looking at your program as a collection of objects that interact with each other. The course focuses on the understanding and practical mastery of object-oriented concepts such as classes, objects, data abstraction, methods, and the three tenets of OOP: encapsulation, inheritance, and polymorphism.

**Prerequisite(s):** CMPL 637 with a minimum grade of D- or CMPL 537G with a minimum grade of D-.

**Equivalent(s):** CMPL 625G

**Grade Mode:** Letter Grading

**CMPL 795 - Integrative Capstone: Internship in Computer Information Tech and Tech Management****Credits:** 4

This upper level course is a field-based experience designed to develop and hone the practical application skills of students in a Computer Information Technology or Technology Management major. Students apply for an internship at a self-selected site and negotiate the terms of the internship experience with a site supervisor under the auspices of their GSC internship mentor. The internship requires documented evidence of eighty hours of supervised experience and practice in a field setting where Computer Information Technology or Technology Management knowledge and skills are applied. This course is the capstone for the BS in Computer Information Technology and BS in Technology Management. NOTE: Registration for this course as an internship is by permission of the Office of Academic Affairs. Early registration deadlines may apply. Prior to capstone enrollment, students are expected to complete the majority of their required major courses. Students should consult with their advisor regarding specific major courses that may be completed with their capstone. NOTE: Students who were admitted to the college before Fall 2019 and have remained active in their original catalog year are not required to take IDIS 601.

**Attributes:** Writing Intensive Course

**Prerequisite(s):** (CRIT 602 with a minimum grade of D- or CRIT 602G with a minimum grade of D- or CRIT 502G with a minimum grade of D-) and (IDIS 601 with a minimum grade of D- or IDIS 601G with a minimum grade of D-).

**Equivalent(s):** CMPL 651G

**Grade Mode:** Letter Grading

**CMPL 797 - Integrative Capstone: Best Practices in Information Technology****Credits:** 4

This course is a project-oriented capstone learning experience that is designed to integrate learning from coursework with related work or other experience. Students focus on best practices in information technology and project management, with specific attention to their area of specialization. Students will complete an integrative project related to their program option and career interests. Prior to capstone enrollment, students are expected to complete the majority of their required major courses. Students should consult with their advisor regarding specific major courses that may be completed with their capstone. NOTE: Students who were admitted to the college before Fall 2019 and have remained active in their original catalog year are not required to take IDIS 601.

**Attributes:** Writing Intensive Course

**Prerequisite(s):** (CRIT 602 with a minimum grade of D- or CRIT 602G with a minimum grade of D- or CRIT 502G with a minimum grade of D-) and (IDIS 601 with a minimum grade of D- or IDIS 601G with a minimum grade of D-).

**Equivalent(s):** CMPL 650G

**Grade Mode:** Letter Grading