INFORMATION TECHNOLOGY (IT)

IT 123 | INTRODUCTION TO COMPUTATIONAL REASONING | 4 quarter hours
(Undergraduate)
This course enables students to develop computational reasoning skills vital for success across multiple disciplines. Students will apply those skills to analyze and design solutions to problems or to express creative concepts. Students will also use computational tools to manipulate, analyze and visualize data. Topics include the representation of data, the design and understanding of algorithms, programming, and the use of abstraction in designing and analyzing computational solutions.

IT 130 | INTRODUCTORY COMPUTING FOR THE WEB | 4 quarter hours
(Undergraduate)
An introduction to the Internet, the World Wide Web, and web development for students with a strong interest in technology. Students will create interactive web pages by writing HTML and CSS and by programming in JavaScript. Topics include the origins of the web, the roles and operations of web browsers and web servers, interacting with web applications through forms, and using style sheets to separate document structure and document formatting.

IT 200 | PUTTING YOUR MAJOR TO WORK | 2 quarter hours
(Undergraduate)
This two credit course is designed to complement the student's major field of study. Students will explore connections between their academic course of study and internship and career opportunities. Students will refine their skills in networking, interviewing, developing a personal brand and utilization of social media tools. (2 quarter hours)

IT 202 | CODING FOR AUDIO AND VIDEO | 4 quarter hours
(Undergraduate)
This course serves as an introduction to programming for students interested in studying audio and sound design for the visual image. Students will learn the importance of coding in audio and video applications, how to create and edit scripts, and how to integrate computer programmers into the workflow.
POST 110 and POST 124 are prerequisites for this class.

IT 211 | INTRODUCTION TO APPLIED PROGRAMMING | 4 quarter hours
(Undergraduate)
Introduction to application development and problem solving. Basic programming constructs including control structures, I/O functions and object-based programming. Projects include small-scale applications using web-services, file processing, databases and application software.
IT 130 or IT 202 is a prerequisite for this class.

IT 212 | APPLIED OO PROGRAMMING | 4 quarter hours
(Undergraduate)
Introduction to Object-Oriented Programming. Students will use object-oriented programming to integrate systems and applications on multiple platforms, developing and understanding basic distributed applications and how they communicate.
IT 211 is the prerequisite for this class.

IT 223 | DATA ANALYSIS | 4 quarter hours
(Undergraduate)
(FORMERLY CSC 323) Application of statistical concepts and techniques to a variety of problems in IT areas and other disciplines, using a statistical package for simple data analysis. Course topics include descriptive statistics, elementary probability rules, sampling, distributions, confidence intervals, correlation, regression and hypothesis testing.
MAT 120 or MAT 120 or (MAT 130 or above or equivalent or Mathematics Diagnostic test placement into MAT 140

IT 228 | ETHICS IN COMPUTER GAMES AND CINEMA | 4 quarter hours
(Undergraduate)
Societies function based on normative ethics utilizing common sense to distinguish between ethical and unethical behavior. Most of us are not aware of the underlying theories when arriving at ethical judgments about right and wrong. However, the fast pace of progress in information technologies and digital entertainment creates an environment in which ethical challenges are particularly complex. In the eyes of many, games and movies are violent, offensive and immoral. This course will concentrate on analyzing the impact of digital entertainment on an individual and society. Implications of certain values embedded in games and movies will be discussed. Elements of the ethical code of conduct for a game or movie creator will be formulated. The issue of balancing individual creativity vs. cultural impact particularly on children will be discussed.

IT 231 | WEB DEVELOPMENT I | 4 quarter hours
(Undergraduate)
Introduction to framework-based web development. Students create interactive, dynamic web sites using a common web architecture and object-based database access. Programming for web development includes control structures, objects, functions, and use of composite data types. Prerequisite: IT 130.
IT 130 is a prerequisite for this class

IT 232 | WEB DEVELOPMENT II | 4 quarter hours
(Undergraduate)
Intermediate framework-based web development. Students design and develop web applications supporting social-networking, content-sharing and functionality for business and organizational needs. Web concepts include AJAX, server-side caching, security threats. Application of object-oriented concepts. PREREQUISITE(S): IT 231 and IT 211.
IT 231 and IT 211 are prerequisites for this class.

IT 238 | INTERACTIVE WEB SCRIPTING | 4 quarter hours
(Undergraduate)
Advanced scripting with javascript and the Document-Object Model (DOM) for creating web pages. Object-oriented principles applied to user interfaces and event handling. Application of Ajax. Use of libraries such as jQuery.
IT 130 is a prerequisite for this class

IT 240 | INTRODUCTION TO DATABASES | 4 quarter hours
(Undergraduate)
This course will introduce students to the design, implementation and use of desktop databases. Major topics include: modeling using ER diagrams, creating and maintaining a database using a PC-based application, composing and using queries in Structured Query Language, creating and customizing forms and reports, and integrating databases with other sources of data and applications.

IT 251 | INTRODUCTION TO MOBILE APPS | 4 quarter hours
(Undergraduate)
Introduction to mobile apps using responsive web design. Students will explore modern layout concepts such as Flexbox and CSS Grid to build flexible, adaptable user interfaces and functional UI development. The course will also cover CSS frameworks to create efficient and scalable apps.
IT 130 is a prerequisite for this class

IT 263 | APPLIED NETWORKS AND SECURITY | 4 quarter hours
(Undergraduate)
This course introduces the networking and security technologies required to build and maintain a home or small-office network. Networking topics will include client/server application software configuration, network connectivity (cabling, switch and router configuration), basic IP addressing, network address translation and options for public Internet access services. Security topics will include typical threats and responses, firewalls, host hardening, password management and virtual private network (VPNs). The course has a lab component where students apply wired and wireless technologies to design and administer a small network with various applications. PREREQUISITE(S): none.

IT 278 | COMMUNITY-BASED TECHNOLOGY PROJECTS | 4 quarter hours
(Undergraduate)
Project development in cooperation with a community service organization. Students will assess urban community Web needs, develop and implement a Web solution.
UXD 220 or IS 215 or IT 320 is a prerequisite for this class.

IT 280 | TEAM PROJECT DEVELOPMENT WITH AGILE | 4 quarter hours
(Undergraduate)
Developing a software solution requires more than just knowing how to program. Software development includes analysis, design, documentation, testing, debugging, deployment and maintenance. These parts of the development process are integrated by following a methodology. Additionally, software development is a highly collaborative activity, where soft skills like effective communication, teamwork, and the ability to give and receive feedback, are keys to a successful software project. This class will cover the fundamentals of team development and the agile methodology for software project in lectures and hands-on labs. Students will work in teams on project and team-building simulations during the quarter.

IT 281 | IMAGE SCIENCE | 4 quarter hours
(Undergraduate)
The image science course will explore basic operations on images, to include image formation, intensity transformations, filtering, color maps, compression and file representation, and special considerations for video processing. The major goal of the course is to enable non-image experts to understand images in sufficient detail to enable an understanding of and facility with the ways that images are used in all areas of technology, with a focus on media technology. Optional topics may include advanced image transformations, generative image technologies, noise mitigation and in-filling after object removal.

IT 300 | RESEARCH EXPERIENCE | 1-8 quarter hours
(Undergraduate)
This course involves the exploration of a research topic under the supervision of a research advisor. PREREQUISITE(S): Consent of dean. (variable credit)

IT 313 | ADVANCED APPLICATION DEVELOPMENT | 4 quarter hours
(Undergraduate)
Development of complex applications through the use of APIs. Appropriate selection of common data structures (hash tables, trees, stacks, queues, networks) and design patterns for use in API development.
IT 212 is a prerequisite for this class

IT 320 | CONTENT MANAGEMENT SYSTEMS | 4 quarter hours
(Undergraduate)
Design and use of Content Management Systems (CMSs) to manage unstructured digital media throughout the enterprise, simplify the publication of Web content, and locate and link content at any level of an organization. Discussion will focus on key users, their roles and responsibilities, collaborative workflow, and versioning. Students will become familiar with available CMSs, design a database-driven Website focusing on separation of the content's semantic layer from its layout, and implement a system using a variety of open-source software.
CSC 241 or IT 211 or IT 231 or IT 238 or CSC 243 is a prerequisite for this class.

IT 330 | USER INTERFACE DEVELOPMENT FOR INTERACTIVE SYSTEMS |
4 quarter hours
(Undergraduate)
Graphical user interface development for web and desktop applications. Event-driven user controls. Development involves use of a visual integrated development environment (IDE).
(IT 231 or IT 238) and (IT 313 or CSC 300) are prerequisites for this class.

IT 338 | WEB DEVELOPMENT FRAMEWORKS | 4 quarter hours
(Undergraduate)
Comparison of advanced web application development frameworks emphasizing MVC architectures and the front-end frameworks that support responsive web interfaces. Development of web applications using current frameworks and code libraries. Research into multiple frameworks with the analysis of framework advantages, disadvantages and implementation issues.
(IT 212 or CSC 242 or CSC 243) and IT 238 are prerequisites for this class.

IT 339 | SERVER-SIDE WEB DEVELOPMENT FRAMEWORKS | 4 quarter hours
(Undergraduate)
Advanced server-side web application servers and services to support MVC architectures and data and resources required in front-end frameworks. Development of server-side application services and APIs using current code libraries and frameworks. Research into application server frameworks and the comparative analysis of strengths, weaknesses, opportunities, and problems.
(IT 212 or CSC 242 or CSC 243) and IT 238 are prerequisites for this class.

IT 372 | INTRODUCTION TO ANDROID DEVELOPMENT | 4 quarter hours
(Undergraduate)
Introduction to the Android platform and life cycle, including Activities, Intents, layouts, resource files, and event handlers. Designing, implementing, and testing GUI applications that use widgets displayed in a layout, using images and audio files, displaying information from and storing information to a local database.
(IT 313 or CSC 300) and (IT 240 or CSC 355) are prerequisites for this class.

IT 373 | SYSTEM CONCEPTS | 4 quarter hours
(Undergraduate)
Overview of concurrency, memory management and file system concepts for operating systems, and web servers. Application of concepts to system administration. Case studies of common operating systems. Web server operations. Virtualization.
IT 313 or CSC 300 is a prerequisite for this class.

IT 390 | TOPICS IN INFORMATION TECHNOLOGY | 4 quarter hours
(Undergraduate)
Advanced study focusing on a specific area of information technology each quarter. May be repeated for credit.

IT 394 | SOFTWARE PROJECTS FOR INDUSTRY CLIENTS | 4 quarter hours
(Undergraduate)
In this project-based service-learning course, students will have the opportunity to work on a team project for real community and industry clients. Students will use problem-solving methods and strategies to develop a software application or web site. Teams utilize a software development methodology to plan and execute their work. Teams meet with their clients and instructors weekly to review project work and resolve outstanding issues.
(IT 280 and IT 320) or SE 333 or SE 359 are prerequisites for this class.

IT 395 | INFORMATION TECHNOLOGY CAPSTONE | 4 quarter hours
(Undergraduate)
In this course, students use their knowledge of programming languages and technologies to develop complete software systems. They work in teams to design, implement, test, and document their projects. Modern software methodologies and tools are used to facilitate the development process. In addition to the technical knowledge needed to develop the projects, good communication skills within project groups are emphasized.
IT 231 and IT 238 and (IT 280 or IS 372) are prerequistes for this class.

IT 398 | TOPICS IN GLOBAL INFORMATION TECHNOLOGY | 2-32 quarter hours
(Undergraduate)
This course focuses on current topics in the information and communications technologies that together support the "networked world." Sample topics are global software development and deployment, global data and information management, and cross-cultural project management for information systems. The course may be offered for variable credit hours (2, 4, 8, 16, and 32). (variable credit)

IT 403 | STATISTICS AND DATA ANALYSIS | 4 quarter hours
(Graduate)
Introduction to univariate data analysis methods. Descriptive statistics and data visualization methods. Overview of sampling techniques for data collection, and introduction to statistical inference methods for decision making including simple linear regression, estimation procedures using confidence intervals and hypothesis testing.

IT 411 | SCRIPTING FOR INTERACTIVE SYSTEMS | 4 quarter hours
(Graduate)
Introductory scripting for developing interactive web pages. Overview of HTML and CSS. Elementary programming concepts using JavaScript for learning control structures, functions, arrays, and object use. User interface development concepts include event handling and use of JavaScript libraries such as jQuery. Review of web clients, servers and architecture.

IT 432 | WEB ARCHITECTURE | 4 quarter hours
(Graduate)
Overview of Web application development for non-programmers. Hands-on exposure to the Model, View, Controller (MVC) framework using a common web framework. Topics include HTML/CSS, data modeling, authentication, AJAX and security issues. Students create and modify dynamic web sites.
IT 411 or IS 411 is a prerequisite for this class.

IT 590 | TOPICS IN INFORMATION TECHNOLOGY | 4 quarter hours
(Graduate)
Advanced study focusing on a specific area of information technology each quarter. May be repeated for credit. PREREQUISITE(S): Instructor consent required.

IT 599 | TOPICS IN GLOBAL INFORMATION TECHNOLOGY | 4 quarter hours
(Graduate)
Course Description: This course focuses on current topics in the information and communications technologies that together support the "networked world". Samples topics are global software development and deployment, global data and information management, and cross-cultural project management for information systems. The course may be offered for variable (1 to 4) credit hours.

IT 698 | MASTER'S THESIS | 2-4 quarter hours
(Graduate)
(2 credit hours) Students may register for this course only after their advisor has approved a written proposal for their thesis. Students must continue to register for this course every quarter after their first registration in it until they complete their project or thesis to the satisfaction of their advisor. They earn two hours of credit for each such registration but only four hours of credit will apply for degree credit. PREREQUISITE(S): Consent of advisor. (2 quarter hours)