Info Systems and Technology (INFO)

INFO 1000
E-Commerce Techniques for Small Business
3
* Prerequisite(s)or-Corequisite(s): Basic Computer Proficiency or IM 1010 strongly recommended

Introduces strategies and best practices for analyzing a target market, designing an online business, and implementing an e-Commerce solution. Discusses online marketing, branding, usability, search engine optimization, personalization, rapid development, theming, and security. Requires implementation of an online small business individually or with a group. Lab access fee of $45 for computers applies.

INFO 1120
Information Systems and Technology Fundamentals
3
* Prerequisite(s): IM 1010 recommended

Explores the fundamental concepts of information technology and the role played by enterprise systems in business and organizational strategy. Introduces types of systems, computer organization and hardware, operating systems and networking, project planning, software development, computer ethics, and career paths for enterprise developers and IT professionals. Lab access fee of $45 for computers applies.

INFO 1200
Computer Programming I for IS IT
3
* Prerequisite(s): MAT 1010 or higher; INFO 1120 recommended

Presents concepts of modern computer programming. Emphasizes problem-solving, algorithm development, and programming desgin. Stresses constructs, data representation, fundamental types and data structures, decision structures, repetition structures, methods, arrays, classes, and objects. Includes testing, debugging, and documentation. Introduces object-oriented, event-driven programming models. Lab access fee of $45 for computers applies.

INFO 2100
Computer Proficiency for Technology Professionals
3
* Prerequisite(s): (ENGL 1010, ENGH 1005, or higher) and (MAT 1030 or higher)

For Technology Management and Construction Management students. Provides opportunities for students to gain proficiency in using Microsoft Office (Word, PowerPoint, Excel, and Access) to enhance their business productivity and problem-solving skills. Teaches students to apply information technologies to problem situations. Meets computer proficiency requirement for Technology Management degree. Lab access fee of $45 for computers applies.

INFO 2200
Computer Programming II for IS IT
3
* Prerequisite(s): (INFO 1200 or CS 1400 with a grade of C- or better within the past seven years) or Departmental Approval
* Prerequisite(s) or Corequisite(s): MATH 1050 or higher

Focuses on object-oriented design and programming methodologies. Teaches inheritance, polymorphism, and encapsulation. Develops knowledge to abstract functionality by using interfaces. Covers collection classes, generics, exception handling, file handling, and more advanced topics such as accessing databases via LINQ, socket/network programming, and multi-threading. Lab access fee of $45 for computers applies.

INFO 2410
Database Fundamentals
3
* Prerequisite(s): (INFO 1120 recommended) or (IM 2010 recommended)

Introduces concepts and use of database management systems. Presents the relational model, Structured Query Language, database design including normalization theory, and application development tools using an enterprise-level relational database management system. Lab access fee of $45 for computers applies.

INFO 2420
Web Application Design
3
* Prerequisite(s): INFO 1120 recommended or IM 1010 recommended

Focuses on the design and construction of Web pages and maintenance of Web sites. Includes foundations in standards-based HTML and CSS. Covers code markup, design concepts and web graphics manipulation, page layout, form development, and usability and accessibility issues. Teaches use of Web authoring tools for code development and site management. Requires individual projects. May be delivered hybrid and/or online. Lab access fee of $45 for computers applies.

INFO 281R
Internship
1 to 8
* Prerequisite(s): Department Approval

Provides opportunities to apply classroom theory on the job. Requires work as paid employees in a job that relates to their careers while enrolled at the College. Students meet at least monthly with the Departmental Internship Coordinator. Completers meet individually set goals. Six credits may be applied toward graduation with an AAS degree and three credits toward certificate programs. May be graded credit/no credit.

INFO 297R
Independent Study
1 to 3
* Prerequisite(s): Department Approval

Offers independent study as directed in reading in individual projects. Approval for this course is at the discretion of the department chairperson. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of $45 for computers applies.

INFO 3120
Management Information Systems
3
* Prerequisite(s): [(MKTG 220G or ENGL 2010) and (Computer Proficiency or INFO 1120 or IM 2010 or IM 2600 with a grade of C- or better within the past five years) or departmental approval] and University Advanced Standing

Introduces the field of information systems and technology. Discusses how to use and manage the most current information technologies (IT) from the perspective of a general business manager. Studies the Internet, Intranets, and Extranets for electronic commerce and enterprise collaboration. Examines business cases demonstrating IT contributions to competitive advantage, reengineering business processes, and decision making. Lab access fee of $45 for computers applies.

INFO 3130
Introduction to Applied Data Analytics
3
* Prerequisite(s): Basic statistics course (MGMT 2340 or STAT 1040 or STAT 1045 or STAT 2040 or STAT 2050 or PSY 3110), and basic knowledge of Microsoft Excel, or Departmental Approval and University Advanced Standing

Intended for people who will be working with data analysts and data scientists, managing analytics projects, or investing in analytics ventures, and aspiring data scientists. Provides opportunities for students to gain skills in data-analytic thinking required to succeed in today's analytical and data-driven economy. Introduces the basics of data management and data analytics. Covers core analytic techniques: data exploration and visualization, pattern discovery (segmentation and association), predictive modeling (decision tree, logistic regression, neural network), and forecasting. Lab access fee of $45 for computers applies.

Course Descriptions

INFO 3300
Web Systems Development
3
* Prerequisite(s): [(INFO 1200 or IT 1200 or CS 1400) and (INFO 2410 or CS 3520) both with a grade of C- or higher within the past seven years] and University Advanced Standing; INFO 2420 recommended

Emphasizes interpretation of business processes, process modeling, and implementation of the models as web applications. Instructs how to implement web solutions that use a relational database backend to manage site data using an industry-standard programming language to interact with the database to produce dynamic web content. Covers parameter passing, cookie storage, and session variables. Introduces application platforms that can be customized to new business requirements. Highlights how to use content management systems (CMS) and how to customize such systems to quickly produce web applications to meet business needs. Lab access fee of $45 applies.

INFO 3330
Client-Side Web Development
3
* Prerequisite(s): [(INFO 1200 or IT 1200 or CS 1400) and (INFO 2410 or CS 3520) both with a grade of C- or higher within the past seven years] and University Advanced Standing; INFO 2420 recommended

Teaches how to create high performance and scalable web sites using JavaScript across the client and server (full development stack). Instructs how to program directly in JavaScript as well as how to utilize JavaScript libraries and frameworks. Introduces popular JavaScript libraries to perform client-side form validation, make AJAX server calls, and deploy mobile apps based on web standards. Covers web application development using client-side frameworks that implement model view controller design patterns. Introduces server-side JavaScript tools and the NoSQL database to manage application data. Lab access fee of $45 applies.

INFO 3360
Server-Side Web Frameworks
3
* Prerequisite(s): [(INFO 1200 or IT 1200 or CS 1400) and (INFO 2410 or CS 3520) both with a grade of C- or higher within the past seven years] and University Advanced Standing; INFO 2200 recommended
* Prerequisite(s) or Corequisite(s): INFO 3300

Emphasizes web application development using modern server-side frameworks for web site architecture as well as data integration technologies. Covers server-side architectural design patterns in depth using Model View Controller (MVC) frameworks. Covers Object Relational Mapping (ORM) tools for database integration as well as techniques to secure a website from common attacks. Teaches how to implement web site authentication and authorization, form validation, web services, and introduces unit testing and test-driven development. Instructs how to package and deploy applications to a web server. Lab access fee of $45 applies.

INFO 3410
Database Systems and Warehousing
3
* Prerequisite(s): (INFO 2410 or CS 3520 with a grade of C- or higher within the past seven years) and University Advanced Standing

Covers advanced database development topics and introduces a data warehouse model designed especially to support analytics and reporting needs. Database development topics covered include transaction management, performance optimization, data loading, and the development of stored procedures, triggers, and functions. Presents the data warehouse model in contrast to existing operational transaction systems. Analyzes business reporting needs, creates models for data warehouses based on the reporting needs, and uses SQL to create and populate tables based on dimensional models. Lab access fee of $45 for computers applies.

INFO 3430
Systems Analysis and Design WE
3
* Prerequisite(s): [INFO 2410 and (INFO 2420 or IT 2700)] or [IM 2600 and IM 2800] each with a grade of C- or higher within the past seven years] and (MKTG 220G or ENGL 2100) and University Advanced Standing

Introduces the systems development life cycle with a focus on systematic planning; requirements, process, and data analysis; and an overview of the design phase. Covers fundamental principles, effective processes, and techniques of project management, including scheduling and project control. Covers appropriate methodologies, tools, diagrams, and techniques for systems analysis, design, and project management. Requires working in teams to complete and present the first planning and analysis phases of a project for a client. Should be taken in the end of the junior year or first semester of the senior year. Should be taken in sequence with INFO 4430 immediately following this course. Lab access fee of $45 for computers applies.

INFO 3700
Health Informatics Fundamentals
3
* Prerequisite(s): University Advanced Standing
* Prerequisite(s) or Corequisite(s): INFO 2410 or ZOOL 1090 or HLTH 3200

Introduces the concepts, practices and ethics of health informatics. Includes a survey of current health care information systems, such as electronic health records, practice management systems, patient portals, consumer health informatics, disease registries, e-prescribing, telemedicine, and public health informatics. Surveys health care information exchange and related standards and classification systems used to implement interoperable computer-based patient records. Examines privacy and security measures, such as HIPAA, HITECH Act, and Meaningful Use and how they are related to data security, privacy and public perception. Lab access fee of $45 for computers applies.

INFO 3750
Healthcare Information Systems Applications
3
* Prerequisite(s): [(INFO 1200 or IT 1200 or CS 1400) and (INFO 2410 or CS 3520) both with a grade of C- or higher within the past seven years] and University Advanced Standing
* Prerequisite(s) or Corequisite(s): INFO 3700

Provides pragmatic coverage of the topics and resources relevant to health informatics. Exposes students to real-world examples and skills related to the acquisition, representation, management, analysis, and use of different types of HIS data. Emphasizes issues such as standardization, security, and handling unstructured data. Includes assignments, a course project, and hands-on experience in applying informatics solutions in health care settings. May be delivered hybrid. Lab access fee of $45 for computers applies.

INFO 405G
Global Ethical and Professional Perspectives in IS and IT GI WE
3
* Prerequisite(s): INFO 3430 and University Advanced Standing

Examines professional and ethical issues within the information systems and information technology fields with a global perspective. Covers ethical and legal issues IT professionals face dealing with computer and cybercrimes, privacy issues, freedom of expression, intellectual property, software development including risk analysis, and social networking. Includes career professional development through resumes, cover letters, and job interviews specific to information systems and technology. Focuses on global networked readiness, digital highways, and challenges that information technology organizations face. Lab access fee of $45 for computers applies. Canvas Course Mats $78/Cengage applies.

INFO 4120
Data Visualization
3
* Prerequisite(s): INFO 2410 and University Advanced Standing; INFO 3130 recommended

Focuses on extracting business intelligence from data sets for various applications including reporting and visual analytics in multiple domains including web analytics and business analytics to aid decision-making processes. Provides hands-on experience with a variety of business intelligence software for reporting and building visualizations and dashboards. Emphasizes how to extract, present and apply business intelligence to improve business decision making. Lab access fee of $45 for computers applies.

INFO 4130
Data Science and Big Data Analytics
3
* Prerequisite(s): (STAT 2050 or MGMT 2340), INFO 3130, and University Advanced Standing

Capstone course extends the concepts of analytics to the analysis of large data-sets, and preparation of analysis reports and presentations describing implications of findings. Uses modern tools such as SAS and R for advanced analytics and Hadoop for big data. Covers the theory and methods of advanced data analytics such as clustering, association, decision trees, time series, and text analysis. Hands-on application using a big data lifecyle lab. Lab access fee of $45 for computers applies.

INFO 4135
Data Security Analytics
3
* Prerequisite(s): IT 2700 and INFO 2410 and University Advanced Standing; (INFO 3130 and INFO 3410 recommended)

Introduces students to the concept of data analytics as applied to cyber security. Includes collection, aggregation, data mining, and analysis of various data sources. Utilizes data analytics tools that correlate data in order to identify security events that may go undiscovered by traditional detection and log analysis methods. Lab access fee of $45 for computers applies.

INFO 4300
Enterprise Web Development
3
* Prerequisite(s): INFO 3300 and University Advanced Standing

Addresses the challenges of developing software applications in a corporate environment. Covers methods to interact with code repositories and commit developed code. Teaches how to create web applications using test-driven development and how to write unit tests for applications. Teaches how to create and group unit tests together and how to trigger the tests automatically when code changes are made. Implements cloud deployments of web applications and teaches how to manage cloud resource usage. Lab access fee of $45 for computers applies.

INFO 4410
Database Administration
3
* Prerequisite(s): (INFO 2410 or CS 3520 within the past five years) and University Advanced Standing

Introduces students to the database administration tasks and tools of a Relational Database Management System (DBMS). Includes the core areas of installation and configuration, maintaining instances and databases, optimizing and troubleshooting, managing data, implementing security, and implementing high availability. Also, introduces NoSQL database solutions and their administration and configuration. Hands-on assignments provide students with opportunities to apply the knowledge gained in the course to a popular commercial database management system. Lab access fee of $45 for computers applies.

INFO 4415
Database Security and Auditing
3
* Prerequisite(s): (INFO 3410 or IT 3700) and University Advanced Standing

Utilizing theory, scenarios, and step-by-step examples, this course provides a strong foundation in database security and auditing. Covers the following topics in depth: the importance of database security in contemporary business environments; Security; Profiles; Password policies, privileges and roles; Virtual Private Databases; Auditing; SQL injection; Database management security issues. Lab access fee of $45 for computers applies.

INFO 4420
Mobile Application Development
3
* Prerequisite(s): (INFO 1200 or CS 1400) and (INFO 2410 or CS 3520) and University Advanced Standing; (INFO 2200 recommended or CS 1410 recommended)

Focuses on the design and development of native mobile device applications. Covers mobile interface design and development using navigation controls specific to a popular mobile development platform. Introduces various user interface controls including those for displaying single data values and data collections along with their event models. Teaches methods for integrating apps with cloud-based data stores and cloud-based authentication. Composes apps with data from web services. Lab access fee of $45 for computers applies.

Course Descriptions

INFO 4425
Web and Application Security
3
* Prerequisite(s): (IT 2700 or CS 2550) and University Advanced Standing
* Prerequisite(s) or Corequisite(s): INFO 3300 or CS 3520

Covers the security of web and mobile applications from offensive and defensive standpoints. Explores common vulnerabilities of web and mobile applications and various tools and techniques for identifying and mapping the attack surface of such applications. Explores various techniques and attack vectors for exploiting security flaws in web and mobile applications. Implements secure coding best practices, defensive architecture, and Content Security Policy to mitigate security flaws and protect the applications, the web client, the communication channel, and the server. Lab access fee of $45 for computers applies.

INFO 4430
Systems Design and Implementation
3
* Prerequisite(s): INFO 3430 and University Advanced Standing

Continuation of INFO 3430. Focuses on the design and implementation of an information system using an agile, iterative development approach. Utilizes self-organizing teams that will deliver working software with ongoing customer collaboration. Introduces use of a source control system to manage code base, an agile project management tool, and encourages continuous integration practices. Requires that students work in teams to complete and present a working system of a project for a client. Lab access fee of $45 for computers applies.

INFO 4440
Enterprise Computing Environments
3
* Prerequisite(s): (ACC 2020 or INFO 3120 or TECH 4420) and University Advanced Standing

Introduces students to Enterprise Computing Environments. Focuses particularly on the configuration and information processing capabilities of ecommerce systems and Enterprise Resource Planning (ERP) systems. Requires students to install, configure, and customize the Magento ecommerce system, and to manage master data. Introduces both Microsoft Dynamics and the SAP ERP system. Uses SAP and Dynamics to demonstrate how enterprise software supports business processes such as order processing, materials requirements management, shipping, invoicing, and purchasing. Requires students to configure a fictional business using the SAP ERP system. May be delivered hybrid. Lab access fee of $45 for computers applies.

INFO 4550
Senior Project
3
* Prerequisite(s): INFO 3430 and University Advanced Standing

Involves the implementation of a significant information system or information technology project. Requires students to work in teams to design and develop a working information system or information technology solution for a community client. Culminates in a presentation of the completed project by project developers to project stakeholders, interested faculty, and administration. Lab access fee of $45 for computers applies.

INFO 459R
Current Topics in Information Systems
3
* Prerequisite(s): (Junior Standing or Department Approval) and University Advanced Standing

Provides exposure to emerging technologies and topics of current interest in information systems. Varies each semester depending upon the changes in the information systems discipline or to address a focused area within the information systems discipline. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of $45 for computers applies.

INFO 4700
Healthcare Information Systems Management
3
* Prerequisite(s): University Advanced Standing

Overviews business practices related to health care information systems. Augments the study of the science of health information with an exposure to the practices whereby health care organizations set goals and objectives, design and implement IT solutions, manage the IT function and organization, and develop technology capital and operating budgets. Presents current best practices of the business of health informatics, drawn from industry journals and business analysis consultants. Covers the management aspects of the legal and ethical issues related to HIS including applying laws related to confidentiality and data security. Lab access fee of $45 for computers applies.

INFO 481R
Internship
1 to 3
* Prerequisite(s): One 3000 or 4000 level course in INFO, IT, MKTG, or MGMT; Department Approval; and University Advanced Standing

For upper-division students in information systems. Provides an opportunity to apply classroom theory while students work as employees in a job that relates to their careers in information systems. May be repeated for a maximum of 3 credits toward graduation.

INFO 489R
Undergraduate Research in Information Systems
1 to 4
* Prerequisite(s): Department approval and University Advanced Standing

Provides the opportunity to conduct research under the mentorship of a faculty member. Practices the theoretical knowledge gained in prior major courses. Creates a significant intellectual or creative product that is characteristic of the Information Systems discipline and worthy of communication to a broader audience. May be repeated for a maximum of 6 credits toward graduation.

INFO 497R
Independent Study
1 to 3
* Prerequisite(s): Department chair approval and University Advanced Standing

For bachelor's degree students and other interested persons. Offers independent study as directed in reading, in individual projects, at the discretion and approval of the department chairperson. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of $45 for computers applies.

INFO 6420
Web and Mobile Application Security
3
* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approvall
* Prerequisite(s) or Corequisite(s): IT 6300

Examines Web application vulnerabilities and remediation techniques. Explores various tools and techniques used to perform Web application assessments. Includes cross-site scripting, SQL injection, session management, and Web server configuration. Emphasizes practical skills developed through extensive hands-on exercises.