Information Systems and Technology (INFO)

INFO 1000
E-Commerce Techniques for Small Business
3:3:0  On Sufficient Demand
* Prerequisite(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
3:3:0  Fall, Spring, Summer
* 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
3:3:0  Fall, Spring
* Prerequisite(s): MAT 1010 or higher; INFO 1120 recommended
Presents concepts of modern computer programming. Emphasizes problem-solving, algorithm development, and programming design. 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
3:3:0  On Sufficient Demand
* 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
3:3:0  Fall, Spring, Summer
* 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
3:3:0  Fall, Spring, Summer
* 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
3:3:0  Fall, Spring, Summer
* 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 8:1 to 8:0  Fall, Spring, Summer
* 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. May be repeated for a maximum of 9 credits toward graduation. Lab access fee of $45 for computers applies.

INFO 297R
Independent Study
1 to 3:0:3 to 9  On Sufficient Demand
* 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
3:3:0  Fall, Spring, Summer
* Prerequisite(s): [INFO 1200 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. Teaches the general business manager how to use and manage the most current information technologies (IT). 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. May be delivered online. Lab access fee of $45 for computers applies.

INFO 3130
Introduction to Applied Data Analytics
3:3:0  Fall, Spring
* Prerequisite(s): Basic statistics course (MGT 2340 or STAT 1040 or STAT 1045 or STAT 2040 or STAT 2050 or BESC 3010), 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.
<table>
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<tr>
<th>Course Code</th>
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<tr>
<td>INFO 3300</td>
<td>Web Systems Development</td>
<td>3:3:0</td>
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<td>* 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</td>
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<td>INFO 3330</td>
<td>Client-Side Web Development</td>
<td>3:3:0</td>
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<td>* 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</td>
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<td>INFO 3360</td>
<td>Server-Side Web Frameworks</td>
<td>3:3:0</td>
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<td>* 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</td>
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<td>INFO 3410</td>
<td>Database Systems and Warehousing</td>
<td>3:3:0</td>
<td>Fall, Spring, Summer</td>
<td>* Prerequisite(s): (INFO 2410 or CS 3520 with a grade of C- or higher within the past seven years) and University Advanced Standing</td>
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<td>INFO 3430</td>
<td>Systems Analysis and Design</td>
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<td>Fall, Spring, Summer</td>
<td>* 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 2200 or ENGL 2310) and University Advanced Standing</td>
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<td>INFO 3700</td>
<td>Health Informatics Fundamentals</td>
<td>3:3:0</td>
<td>Fall, Spring</td>
<td>* Prerequisite(s): University Advanced Standing</td>
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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
3:3:0 Spring
* 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

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
3:3:0 Fall, Spring, Summer
* 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. May be delivered hybrid. Lab access fee of $45 for computers applies.

INFO 4120
Business Intelligence Systems
3:3:0 Fall, Spring
* Prerequisite(s): (INFO 3120 or INFO 3130) and University Advanced Standing; INFO 2410 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
3:3:0 Fall, Spring
* 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 datasets, 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 lifecycle lab. Lab access fee of $45 for computers applies.

INFO 4135
Data Security Analytics
3:3:0 Fall
* 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
3:3:0 On Sufficient Demand
* 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
3:3:0 Fall, Spring
* 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
3:3:0 Spring
* 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
3:3:0 Fall
* 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 the navigation controls specific to a popular mobile development platform. Teaches methods for integrating various device capabilities such as the accelerometer, touch interface, contacts app, image displaying capabilities, and the device’s storage. Introduces apps that store and retrieve data from popular cloud data stores. Lab access fee of $45 for computers applies.
INFO 4425  
**Web Application Security**  
3:3:0  
Spring  
* Prerequisite(s): IT 2700 and University Advanced Standing  
* Prerequisite(s) or Corequisite(s): INFO 3300
Cars

Examines web application vulnerabilities and remediation techniques. Explores various tools and techniques for mapping web applications and assessing their vulnerabilities. Includes authentication management, session management, cross-site scripting, SQL injection, and web server configuration. Emphasizes practical skills developed through extensive hands-on exercises. Lab access fee of $45 for computers applies.

INFO 4430  
**Systems Design and Implementation**  
3:3:0  
Fall, Spring, Summer  
* Prerequisite(s): INFO 3430 and University Advanced Standing
Cars

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 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**  
3:3:0  
On Sufficient Demand  
* Prerequisite(s): (ACC 2020 or INFO 3120 or TECH 4420) and University Advanced Standing
Cars

Introduces students to Enterprise Computing Environments. Focuses particularly on the configuration and information processing capabilities of e-commerce systems and Enterprise Resource Planning (ERP) systems. Requires students to install, configure, and customize the Magento e-commerce 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**  
3:3:0  
On Sufficient Demand  
* Prerequisite(s): INFO 3430 and University Advanced Standing
Cars

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**  
3:3:0  
Fall, Spring  
* Prerequisite(s): (Junior Standing or Department Approval) and University Advanced Standing
Cars

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**  
3:3:0  
Fall  
* Prerequisite(s): University Advanced Standing
Cars

Overviews business practices related to healthcare 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 3:1 to 3:0  
Fall, Spring, Summer  
* Prerequisite(s): INFO 3300, INFO 3410, INFO 3430, (INFO 3130 or INFO 3330 or INFO 3700 or IT 2700, depending on emphasis), Department Approval, and University Advanced Standing
Cars

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. A maximum of 3 credit hours may be counted towards graduation without prior written IS&T Department approval. May be graded credit/no credit.

INFO 489R  
**Undergraduate Research in Information Systems**  
1 to 4:0:5 to 20  
On Sufficient Demand  
* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Information Management or Certificates in Cybersecurity or Cybersecurity and Project Management  
* Prerequisite(s): Department approval and University Advanced Standing
Cars

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 3:0 to 9  
On Sufficient Demand  
* Prerequisite(s): Department chair approval and University Advanced Standing
Cars

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 482R  
**Senior Project**  
1 to 3:1 to 3:0  
On Sufficient Demand  
* Prerequisite(s): University Advanced Standing
Cars

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 3:0 to 9  
On Sufficient Demand  
* Prerequisite(s): Department chair approval and University Advanced Standing
Cars

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**  
3:3:0  
Fall  
* Prerequisite(s): Acceptance into Graduate Certificate or Master of Science in Cybersecurity or Departmental Approval  
* Prerequisite(s) or Corequisite(s): IT 6300
Cars

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.