INFORMATION SCIENCE

INFSCI 0010 INTRODUCTION TO INFORMATION, SYSTEMS & SOCIETY 3 cr.
Introduction to the concepts, principles, and skills of information science for students with no programming experience. Topics include: the need for information and the use of information, data collection, coding, storage and retrieval, information processing, information display, and the evaluation of information.
Prerequisite: None.

INFSCI 0015 DATA STRUCTURES AND PROGRAMMING TECHNIQUES 3 cr.
Definition, description, and implementation of several information structures such as linked lists, stacks, and queues, using a scientific programming language (e.g., C).
Prerequisite: CS 0422.

INFSCI 0017 FUNDAMENTALS OF OBJECT-ORIENTED PROGRAMMING 3 cr.
First programming course for Information Technology majors, designed for students with little or no programming experience. This class will cover basic principles and concepts of object-oriented programming using Java, classes, interfaces, operators, program control, arrays, testing, debugging, inheritance, polymorphism, and event handling. Techniques for simplifying the programming process and improving code quality. Activity-based learning.
Prerequisite: None.

INFSCI 1002 ARCHITECTURE AND ASSEMBLY LANGUAGE 3 cr.
Uses assembly language as the focus for a deeper understanding of computer architecture. Treats the relationship between higher languages to assembly language and its implementation in hardware.
Prerequisite: INFSCI 0015.

INFSCI 1014 GRAPHICS 3 cr.
Techniques for producing graphical displays using computers. How to design and create computer graphics. Overview of artistic and technical knowledge needed to create graphics. What makes a good graphical display will be investigated.
Prerequisite: CS 0422.
INFSCI 1017 IMPLEMENTATION OF INFO SYSTEMS 3 cr.
Second programming course for Information Technology majors. Advanced Java language features required for professional software development. Data structures, OO design, graphical user interfaces, exception handling, multithreading, I/O, web and network programming.

Prerequisite: INFSCI 0017.

INFSCI 1022 DATABASE MANAGEMENT SYSTEMS 3 cr.
The design, implementation, and utilization of database management systems. Contrasts the methodologies of file systems, data management systems, and database management systems. Various data structures (e.g., tree, network, linked list) and several database models (e.g., the codasyl database task group model and the relational database model). Administrative tasks required in database management are considered.

Prerequisite: INFSCI 0010.

INFSCI 1024 INFORMATION SYSTEMS ANALYSIS 3 cr.
Requirements management; best practices in eliciting, documenting and verifying requirements; writing effective use cases; constructing UML-compliant models (class, state and activity diagrams); specification of user interface and data layers; rapid prototyping.

Prerequisite: INFSCI 0010.

INFSCI 1037 INFORMATION TECHNOLOGY PROJECT MANAGEMENT 3 cr.
Presents a structured methodology to plan, manage, and control a project from inception to implementation. Topics will include identification of necessary resources, status reviews to manage risk of delays or failure, use of a Work Breakdown Structure and Project Management software, along with the change management process as a framework to analyze the impact of changes.

Prerequisites: INFSCI 1022 and INFSCI 1070.

INFSCI 1038 MANAGEMENT OF INFORMATION SYSTEMS 3 cr.
Provides students with an appreciation for the actual working environment of the typical MIS department within the business community. Topics covered include organizational structure and communication, budgeting issues, personnel issues, equipment acquisition and installation, planning for daily operations, and system evaluation.

Prerequisite: Senior; INFSCI 1037.
INFSCI 1044  HUMAN FACTORS IN SYSTEM DESIGN  3 cr.

Examines human-machine designs with special emphasis on human-computer interaction. Topics center on how to analyze, create, and improve equipment and environments to be compatible with human capabilities and expectations.

Prerequisite: PSY 0010.

INFSCI 1052  USER CENTERED DESIGN  3 cr.

Introduces principles and programming of interactive systems. Interaction techniques are surveyed and incorporated in the design of interfaces.

Prerequisite: CS 0422 and INFSCI 0015.

INFSCI 1053  DIGITAL FORENSICS  3 cr.

An introduction to the collection, analysis, and preservation of digital evidence in criminal investigation. A summary of legal issues and challenges will be augmented by discussion of current trends which impact practitioners. Examples of software and other tools will be used to illustrate techniques.

Prerequisite: Instructor Consent Required.

INFSCI 1058  WEB PROGRAMMING  3 cr.

Introduces the PHP scripting language. Students will download and install the Apache web server, PHP, and MYSQL database. Covers programming concepts, client server architecture, database access and XHTML/cascading style sheets. Students will write a full scale web application as their final project.

Prerequisite: CS 0421 and INFSCI 1022.

INFSCI 1068  GEOSPATIAL INFORMATION SYSTEMS (GIS)  3 cr.

Introduction to geographic information system (GIS) concept and technology including spatial data sources, spatial data models and structures, spatial database management, map projection systems, geocoding and georeferencing, spatial analysis, spatial data visualization (maps), GIS applications (e.g., address-location finding, navigation, routing), and commercial GIS software packages.

Prerequisite: INFSCI 1022.

INFSCI 1070  INTRO TO TELECOMMUNICATIONS AND NETWORKS  3 cr.

Top-down orientation relates networking technologies to organizational goals and needs. Data communications and internet technologies and basic system performance analysis. TCP/IP, LANS, WANS, internetworking, and signals and communications media

Prerequisites: INFSCI 0010 and (MATH 0031 and MATH 0020).
INFSCI 1071  APPLICATIONS OF NETWORKS  3 cr.

Second course in telecommunications and networks. Network architecture, protocols, performance, design, and analysis based on application needs, organizational requirements, user requirements, and performance objectives.

Prerequisite: INFSCI 1070.

INFSCI 1072  INTRODUCTION TO WIRELESS NETWORKS  3 cr.

Introductory broad overview for students with a basic background in telecommunications. Not for Telecom majors. Principles of wireless communications and how they differ from wired communications. Fundamental concepts including: Transmission and mitigation techniques (e.g., modulation and coding, propagation, interference and antennas) for wireless systems, multiplexing techniques, wireless system architectures, mobility management, security, protocols and location technology. Systems include: Cellular phone networks (e.g., CDMA2000, UMTS), wireless local area networks (e.g., IEEE 802.11G), personal area networks (e.g., Bluetooth), fixed point broadband wireless (e.g., WIMAX) and satellite systems.

Prerequisite: INFSCI 1070.

INFSCI 1074  COMPUTER SECURITY  3 cr.


Prerequisite: None.

INFSCI 1075  NETWORK SECURITY  3 cr.

Network security and cryptographic protocols. Network vulnerabilities, attacks on TCP/IP, network monitoring, security at the link, network and transport layers. Cryptography, e.g., secret and public key schemes, message authentication codes and key management. WLAN security, IPSEC, SSL, and VPNS. E-mail security (PGP, S/MIME); Kerberos; X.509 certificates; AAA and mobile IP; SNMP security; firewalls; filters and gateways. Policies and implementation of firewall policies; stateful firewalls; firewall appliances. Network related physical security, risk management and disaster recovery/contingency planning issues and housekeeping procedures.

Prerequisites: (CS 0421 or INFSCI 0015) and INFSCI 1070.
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<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tr>
<td>INFSCI 1078</td>
<td>ETHICS IN COMPUTING</td>
<td>3 cr.</td>
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<td>An introduction to cyber-ethics. Considers ethical issues both from the professional perspective, as applied to computing professionals, and also from the perspective of the user or consumer of technology in society today. <strong>Prerequisite:</strong> ENGCMP 0020 or Instructor Consent Required.</td>
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<td>INFSCI 1080</td>
<td>INDEPENDENT STUDY</td>
<td>1-3 cr.</td>
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<td>Development of readings, research, and practical implementation of a system or other forms of study as arranged between student and instructor.</td>
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<td>INFSCI 1085</td>
<td>INTERNSHIP</td>
<td>3 cr.</td>
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<td>Supervised work in an information environment providing a frame of reference for understanding and an opportunity to apply the skills, methodologies, and theories presented in Information Science courses. <strong>Note:</strong> Instructor Permission Required.</td>
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<tr>
<td>INFSCI 1092</td>
<td>SPECIAL TOPICS: SYSTEMS</td>
<td>3 cr.</td>
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<td>Advanced class focusing on current or special topics in Systems area. <strong>Prerequisite:</strong> None.</td>
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<tr>
<td>INFSCI 1680</td>
<td>SOCIAL MEDIA</td>
<td>3 cr.</td>
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<td>Examines the use of social media for marketing, recruiting, research, collaboration on projects, customer engagement and applications in a variety of organizations. Metrics to evaluate competitive position and the success of new approaches to social media will be covered. Students will complete a project to recommend social media applications for a small organization. <strong>Prerequisite:</strong> None.</td>
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