

# Management Information Systems (MIS)

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## Courses

### **MIS 323. ECCE: Social Health Care Informatics. 3 Hours.**

This course will introduce students to key social research perspectives on the use of information technology in health care delivery systems. Students will discuss current issues in social health care informatics such as the impact of digital disparities, and the role of health information technology in improving health care for underserved or vulnerable U.S. communities. The course will also introduce students to methodologies for health care informatics research. Course Information: This course fulfills an Engaged Citizenship Common Experience requirement at UIS in the area of U.S. Communities.

### **MIS 325. Health Care Informatics Programming. 3 Hours.**

This course covers fundamental principles, concepts, and methods of computing, with emphasis on applications in the Health Care Informatics area. This course includes problem solving and programming techniques; fundamental algorithms and data structures; use of computers in solving health care delivery related problems; and an intro to software development environments in the health care area. Course Information: Prerequisites: CSC 275 or equivalent.

### **MIS 352. Principles of Management Information Systems. 3 Hours.**

(CBM core course) Introduces students to fundamental concepts in management information systems (MIS), the role of computers in MIS, and some details of how the computer functions. Topics include various types of information systems, use of information by management, and information systems applications. The students will also be exposed to the application of MIS technologies in the development of business solutions through end user computing and topics such as computer hardware and software, operating systems, and security. Course Information: Enrollment requires completion of at least 48 hours of college level coursework. Access to the Internet is required.

### **MIS 370. Topics in Management Information Systems. 1-4 Hours.**

An advanced topic from the current literature of MIS. May be repeated for an indefinite number of hours, but particular topics must differ. Course Information: Access to the Internet is required.

### **MIS 371. Enterprise Architecture. 3 Hours.**

This course explores the design, selection, implementation, and management of enterprise IT solutions. The focus is on applications, infrastructure, and their fit with the business. Students learn frameworks and strategies for infrastructure management, system administration, data/information architecture, content management, middleware, software selection, total cost of ownership calculation, and IT investment analysis. Access to the Internet is required. Course Information: Prerequisite: CSC 275 or equivalent.

### **MIS 376. Business Analytics. 3 Hours.**

Analysis of data considering its environment for decision making. Includes modern business analytic tools to enhance data skills on domains for extracting insights for business analysis. Course Information: Prerequisites: ECO 213 or MAT 121.

### **MIS 377. Visual Analytics for Business. 3 Hours.**

Application of basic visualization concepts and techniques in business data analysis. Includes identifying meaningful patterns, recognizing potential problems and opportunities to improve business performance using visual analytics tools.

### **MIS 385. Data and Information Management. 3 Hours.**

This course provides students with an introduction to the core concepts in data and information management. Core skills of identifying organizational information requirements, conceptual data, modeling techniques, converting the conceptual data models into relational data models and verifying its structural characteristics with normalization techniques, and implementing and utilizing a relational database using an industrial-strength database using management system. Course Information: Prerequisite: MIS 352. Access to the Internet is required.

### **MIS 395. Electronic Business Strategy, Architecture, and Design. 3 Hours.**

The course focuses on the linkage between organizational strategy and networked information technologies to implement a rich variety of business models in the national and global contexts connecting individuals, businesses, governments and other organizations to each other. The course provides an introduction to e-business strategy and the development and architecture of e-business solutions and their components. Course Information: Prerequisite: MIS 352. Access to the Internet is required.

### **MIS 454. Systems Analysis and Design. 3 Hours.**

The course covers a systematic methodology for analyzing a business problem or opportunity, determining what role, if any, computer-based technologies can play in addressing the business need, articulating business requirements for the technology solution, specifying alternative approaches to acquiring the technology capabilities needed to address the business requirements, and specifying the requirements for the information systems solution in particular, in-house development, development from third party providers, or purchased commercial-off-the-shelf (COTS) packages. Alternative design, development, and implementation methodologies are discussed. Course Information: Prerequisite: MIS 352 and MIS 385. Access to the Internet is required.

### **MIS 455. Human-Computer Interaction Design. 3 Hours.**

This course provides an introduction to the field of Human Computer Interaction (HCI), an interdisciplinary field that integrates cognitive psychology, design, information systems, and others. Examining the human factors associated with information systems. The course provides students with knowledge to understand the influence of usability in the acceptance of information systems. This course will examine concepts, guidelines, and principles of HCI.

### **MIS 456. Networks and Telecommunications in Organizations. 3 Hours.**

This course provides an in-depth knowledge of data communications and networking requirements including networking and telecommunications technologies, hardware, and software. Emphasis is upon the analysis and design of networking applications in organizations. Management of telecommunications networks, cost-benefit analysis, and evaluation of connectivity options are covered. Course Information: Prerequisite: MIS 352. Access to the Internet is required.

**MIS 458. Project Management. 3 Hours.**

Managing projects within an organizational context, including the processes related to initiating, planning, executing, controlling, reporting, and closing a project. This course covers topics such as project integration, scope, time, cost, quality control, risk management, and earned value management. Course information: Same as BUS 452. Prerequisites: MIS 352 is required, as well as BUS 322 or an equivalent. Access to the internet is required.

**MIS 468. Business Process Management. 3 Hours.**

Students will be introduced to key concepts and approaches to business process management and improvement. The main focus of this course is both understanding and designing business processes. Students will learn how to identify, document, model, assess, and improve core business processes. Students will be introduced to process design principles. The way in which information technology can be used to manage, transform, and improve business processes is discussed. Students will be exposed to challenges and approaches to organizational change, domestic and offshore outsourcing, and inter-organizational processes. Course Information: Prerequisite: MIS 352. Access to the Internet is required.

**MIS 469. IS Strategy Management and Acquisition. 3 Hours.**

This course explores the issues and approaches in managing the information systems function in organizations and how the IS function integrates/supports/enables various types of organizational capabilities. It takes a senior management perspective exploring the acquisition, development, and implementation of plans and policies to achieve efficient and effective information systems. The course addresses issues relating to defining the high-level IS infrastructure and the systems that support the operational, administrative, and strategic needs of the organization. Course Information: Prerequisite or co-requisite: All MIS required courses. Access to the Internet is required.

**MIS 470. Advanced Topics in Management Information Systems. 1-3 Hours.**

An advanced topic from the current literature of MIS. May be repeated for an indefinite number of hours, but particular topics must differ. Course Information: Access to the Internet is required.

**MIS 471. Artificial Intelligence and Machine Learning. 3 Hours.**

Intro to fundamentals of artificial intelligence (AI). Topics include principles of machine learning, big data analytics, and predictive modeling. Neural networks, deep learning, and the latest AI developments will be discussed with examples from real-world applications. Investigate the capabilities and limitations of AI, identify problems where AI is applicable, and implement techniques with hands-on exercises. Course Information: Prerequisites: MIS 376.

**MIS 473. Data Mining and Predictive Analytics. 3 Hours.**

Discuss several data mining concepts, processes, and techniques. Analyze and develop supervised and unsupervised models to generate meaningful insights from the dataset. Implement the data driven approach for hands-on project with data mining techniques. Course Information: Prerequisites: MIS 376.

**MIS 476. Business Analytics Practicum. 3 Hours.**

Provide an opportunity to integrate and to apply the concepts, methods, and tools learned throughout this program to complete a team project. The project is interdisciplinary in nature. Project teams go through major steps in business analytics process to generate a sharable report. This report can serve as a portfolio to prepare students entering business analytics field. Course Information: Prerequisites: MIS 376, MIS 377. Co-requisite with MIS 473.

**MIS 478. Health Care Information Systems Security. 3 Hours.**

This course covers technical and managerial security issues in generation, storage, and access of healthcare information. Technical issues include threats, vulnerabilities, and controls in healthcare information systems. Managerial issues include risk management, security planning, disaster recovery, legal and ethical issues, such as privacy and confidentiality of patient information. Course Information: Prerequisites: MIS 352.

**MIS 499. Tutorial. 1-3 Hours.**

Intended to supplement, not supplant, regular course offerings. Students interested in a tutorial must secure the consent of the faculty member concerned before registration and submit any required documentation to him or her. Course Information: Access to the Internet is required.

**MIS 502. Technical Foundations of Information Systems. 3 Hours.**

Introduces details of computer hardware and software technologies necessary for information systems professionals. Particular hardware architectures (CISC, RISC), operating systems fundamentals, and concepts of mobile application development will be described. Programming skills for mobile applications will be developed. Course Information: Co-requisite: Proficiency or coursework in a high level programming language such as Java, C++, Visual Basic, COBOL, C Fortran, etc. Access to the Internet is required. Restricted to graduates.

**MIS 513. Management Information Systems. 3 Hours.**

Provides a foundation for understanding and analyzing information in organizations. Fundamental concepts of systems and information are covered. Topics include computer-based information systems, user requirements, and analysis and specification of systems requirements, life cycle, and security. Course Information: Open to non-majors. Access to the Internet is required.

**MIS 523. Fundamentals of Business Analytics. 3 Hours.**

This course provides a foundation for a variety of business intelligence and analytics topics. Topics include descriptive analytics, predictive analytics, prescriptive analytics, big data analytics, and emerging technologies in this area. The course equips students with fundamental concepts and techniques of business intelligence, analytics and decision support. Course Information: Prerequisites: BUS 322 or equivalent and MIS 513 or equivalent. MIS 513 may be taken concurrently with this course. Access to the Internet is required.

**MIS 525. Information Technology Management. 3 Hours.**

Familiarity with a broad range of managerial as well as technical issues, technologies, and terminologies such as information systems high-level architecture and life cycle, information flow within organization, managerial decision making tools, data quality control and assurance, ethical and legal aspects of IS, and successful implementation of IS projects. Course Information: Core required course for MBA. Not accepted toward satisfaction of MIS program requirements. Prerequisites: Completion of or concurrent enrollment in ACC 311 or equivalent, and ECO 315 or equivalent, and BUS 501 (a prerequisite for MBA students only). Peoria Cohort students must complete ACC 311 or equivalent and ECO 315 or equivalent prior to enrolling in this course. Access to the Internet is required. Restricted to Graduate and Doctoral - Springfield and Graduate - Peoria.

**MIS 542. Management of Database Systems. 3 Hours.**

Database design theory and development techniques are covered where the main focus is on the relational databases. Topics discussed include data modeling theories (entity-relationship diagrams) and theory implementation in CASE tools, data definition language to create physical databases in commercially available RDBMS such as Oracle 9i, data manipulation language and Structured Query language (SQL) to manage data within the database, client/server, distributed and Internet databases architectures, form and report design using Microsoft Access database. The main goal is to train the students to assume roles such as database analyst/designer or administrator throughout their professional career. Course Information: Prerequisites: MIS 513 (may be taken concurrently). Curricular Practical Training (CPT) eligible. Access to the Internet is required.

**MIS 552. System Analysis And Design. 3 Hours.**

The overall goal of this course is to introduce students to a wide range of theoretical as well as practical techniques and methodologies in the area of information systems analysis and design. The course will train the students to assume roles such as systems analyst and technical project management in their career. The three most important topics addressed in the course are Analysis, Design, and Implementation of information systems where Systems Development Life Cycle, various diagramming techniques, and decision analysis concepts are discussed and practiced. Course Information: Curricular Practical Training (CPT) eligible. Prerequisites: MIS 513 (may be taken concurrently). Access to the Internet is required.

**MIS 564. Data Communications and Networking. 3 Hours.**

Telecommunications involve transmission of data, voice, image, and video over communication networks. This course covers the concepts, models, architectures, protocols, standards, and security for the design, implementation, and management of digital networks. Fundamental network concepts are introduced using a network model that divides data communications into multiple layers, such as application, network and transport, data link, and physical layer. Network technologies are covered in terms of different types of networks (i.e. local area networks {LAN}, backbone networks, wide area networks {WAN}, wireless networks, and the Internet). Network management and security are also emphasized. Course Information: Prerequisites: MIS 513 (may be taken concurrently).

**MIS 567. Business Process Modeling and IT Governance. 3 Hours.**

This course enables students to learn about the methodologies used to redesign optimal business processes and related information technologies used in support of process innovation. Students learn about the state-of-the-art techniques used in support of business process modeling, simulation, analysis, and redesign. These techniques, learned through hands-on practice with SAP systems and ARIS simulation, include: identifying best-practice process, workflow automation, simulation of the business processes, and design of strategic enterprise management systems for efficient and effective use of information technology in support of business operations. Moreover, in this course, students learn about the concepts, principles, and models of enterprise governance of Information Technology in support of business process change and management. Course Information: Prerequisites: MIS 513.

**MIS 568. Business Process Management and Process Mining. 3 Hours.**

Study of a process-oriented view of the organization and its relationships with suppliers, customers, and competitors. Identify the processes as vehicles for achieving strategic objectives and transforming organizations. Analyze, design, implement, monitor, and mine processes to optimize operations and achieve compliance. Course Information: Prerequisites: MIS 513.

**MIS 570. Topics in Management Information Systems. 3 Hours.**

An advanced topic from the current literature of MIS. Course Information: May be repeated if topics vary. Access to the Internet is required.

**MIS 573. Project and Change Management. 3 Hours.**

Managing projects within an organizational context, including the processes related to initiating, planning, executing, controlling, reporting, and closing a project. Project integration, scope, time, cost, quality control, and risk management. Software size and cost estimation. Assigning work to programmer and other teams, monitoring progress and version control, managing the organizational change process. Identifying project champions, working with user teams, training, and documentation. The change management role of the IS specialist. The use of sourcing and external procurement; contracts and managing partner relationships. Students will be exposed to knowledge base needed for Project Management certification. Course Information: Prerequisite: BUS 322, or equivalent, or permission of instructor. Curricular Practical Training (CPT) eligible. Open to non-MIS majors. Access to Internet is required. Restricted to Doctoral - Springfield, Graduate - Springfield.

**MIS 576. Data Mining for Business Analytics. 3 Hours.**

An in-depth knowledge of several data mining concepts, processes, and techniques including both supervised and unsupervised techniques. Comprehension, application and evaluation of the data mining techniques will develop the expertise to analyze data for better decision making. Course Information: Prerequisites or Co-requisites: MIS 542 or instructor's permission. Curricular Practical Training (CPT) eligible. Access to the Internet is required.

**MIS 577. MIS Design and Research Methods. 3 Hours.**

The major objective of this course is to discuss fundamentals of MIS research and design science methodologies. The participants will learn how to conduct quantitative, qualitative, and design science research within the MIS context. Topics covered include methods for systematic literature review, gap identification, data collection and analysis, as well as interpretation and presentation of finding. After completing this course, participants should be able to conduct applied and/or theoretical MIS-related research. Course Information: Prerequisites: Introductory Statistics.

**MIS 578. Information Security. 3 Hours.**

This course will cover both technical and non-technical aspects of information security. The technical part will cover information security threats, vulnerabilities and controls. The technical materials focus on concepts and principles rather than design and implementation. The non-technical part will cover risk management, security planning and disaster recovery, legal, ethical and professional issues. Course Information: Prerequisite: MIS 564. This is an MIS graduate level elective course. Access to the Internet is required.

**MIS 579. Cybersecurity Management. 3 Hours.**

Discussion of the principles and practices of cybersecurity management on how to protect information systems against attacks, intrusions, malware and data breaches. From a management perspective, includes the contents of policies, approaches, and techniques related to security issues threatening businesses and organizations.

**MIS 581. Compliance and Legal Issues in Cybersecurity. 3 Hours.**

Review of the security laws, privacy issues, regulations, and compliance standards in a global environment. Includes management of the complexities of security, compliance and legal obligations, including general laws, industry standards, and standards of third-party vendors and specific organizations.

**MIS 583. Graduate Project And Seminar. 3 Hours.**

Closure experience involving an advanced problem or need in MIS; may or may not involve a practicum. Project topic must be approved in advance by the MIS Department Committee; written report and oral presentation required. Students are required to participate in a regularly scheduled seminar that covers the process of project design and methods in MIS. Access to the Internet is required. NOTE: If the project is not completed during the initial four-hour enrollment, students must register for MIS 586 for zero credit hours (one billable hour) in all subsequent semesters until the project is completed. Course Information: Prerequisite: 24 hours of 500 level coursework in MIS. Curricular Practical Training (CPT) eligible. Access to the Internet is required.

**MIS 584. Capstone. 3 Hours.**

Analyze and evaluate current and emerging MIS topics. Assignments include a final paper or project, group discussions, and paper critiques. Should be taken in the last semester of the program and must be taken again if not completed during initial enrollment. Course Information: Prerequisites: MIS 577 and successful completion of 27 credit hours of 500-level coursework in MIS. Curricular Practical Training (CPT) eligible. Internet access required.

**MIS 585. Thesis And Seminar. 6 Hours.**

Academic study of a student-selected topic in MIS that involves a survey of relevant literature and empirical analysis. Thesis topic must be approved in advance by the MIS Department Committee; written report and oral presentation required. Students are required to participate in a regularly scheduled seminar that covers the process of conducting research in the field of MIS and phases of the research process. NOTE: If the thesis is not completed during the initial six-hour enrollment, students must register for MIS 587 for zero credit hours (one billable hour) in all subsequent semesters until the thesis is completed. Course Information: Prerequisite: 24 hours of 500-level coursework in MIS. Curricular Practical Training (CPT) eligible. Access to the Internet is required.

**MIS 586. Graduate Project and Seminar Continuing Enrollment. 0 Hours.**

Refer to NOTE in course description for MIS 583. Course Information: May be repeated.

**MIS 587. Thesis and Seminar Continuing Enrollment. 0 Hours.**

Refer to NOTE in course description for MIS 585. Course Information: May be repeated. Access to the Internet is required.

**MIS 588. Exit Exam. 0 Hours.**

Assessment of achievement of the learning objectives of the MS in Management Information Systems of graduating students. Exit exam assesses students' body of knowledge mastered in the core courses of the program. Course Information: Credit/No Credit grading only. MIS 588 must be taken during the student's final semester before graduation.

**MIS 589. Exit Exam for MS-MIS Practice Track Continuing Enrollment. 0 Hours.**

Students who do not complete MIS 588 Exit Exam - MS in MIS Practice Track must register for MIS 589 (zero credit, one billable hour) in each subsequent semester until the Exit Exam is completed. Course Information: May be repeated.

**MIS 591. Digital Forensics. 3 Hours.**

Introduces legal issues, such as laws, search warrants, admissibility of evidence, of digital forensics. Focuses on digital forensics procedures and techniques, from data acquisition, data analysis, to report writing. Covers various technology areas, such as email, Web, cloud, and mobile devices. Students will gain practical skills through hands-on exercises. Course Information: Prerequisites: MIS 578.

**MIS 592. Penetration Testing and Vulnerability Assessment. 3 Hours.**

Focuses on methods and techniques of penetration testing of corporate computer networks. Covers commonly used reconnaissance and hacking techniques. Introduces various vulnerability scanning tools. Reviews relevant concepts, terminology, and policies. Students will gain skills through hands-on exercises. Course Information: Prerequisites: MIS 578.

**MIS 593. Cybersecurity Policy. 3 Hours.**

Review of the cybersecurity policies, methods and guidelines to effectively implement cybersecurity in organizations. Discussion of prototypical organizational goals in managing the development, maintenance, and the replacement of cybersecurity policy. Implementation of different cybersecurity policies in real world scenarios. Course Information: Prerequisites: MIS 578.

**MIS 594. Business Continuity Planning. 3 Hours.**

Define vulnerabilities within computer networks and the countermeasures that mitigate risk and damage. Discuss contingency operations, and planning processes for incident response, disaster recovery, and business continuity. Implementation of different business continuity planning processes in real world scenarios. Course Information: Prerequisites: MIS 578.

**MIS 595. Capstone - Cybersecurity Management. 3 Hours.**

Integrates acquired knowledge and skills of Cybersecurity Management (CSM). Elaborate current topics in Cybersecurity Management including issues of governance and strategic planning for security, policy making, risk management, and business continuity planning. Design and implement effective cybersecurity management programs. Course Information: Prerequisites: 24 hours of 500-level coursework in MIS/CSM. Restricted to Cybersecurity Management.

**MIS 596. Cybersecurity Management Capstone Continuing Enrollment. 0 Hours.**

Students who do not complete MIS 595 Capstone - Cybersecurity Management must register for MIS 596 (zero credit, one billable hour) in each subsequent semester until the capstone is completed. Course Information: May be repeated.

**MIS 599. Tutorial. 1-3 Hours.**

Intended to supplement, not supplant, regular course offerings. Students interested in a tutorial must secure the consent of the faculty member concerned before registration and submit any required documentation to him or her. Course Information: May be repeated to a maximum of 3 hours. Access to the Internet is required.