

Management Information Systems

In the Fowler College of Business

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Faculty

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Master of Science Degree in Information Systems

General Information

The objective of the Master of Science degree in information systems is to prepare students to take a senior position associated with the information systems field across all private industries and public sectors. With the broadening spectrum of the information systems field and subsequent rich set of career opportunities, there is an ongoing need to educate students so that they can take leadership positions in both established and emerging fields of information systems. To serve the student and industry needs effectively, the program is designed to balance management knowledge of business and technology, general technical knowledge in information systems, and domain knowledge in the special area selected by the student. Upon successful completion of the program, students will be competent in leading organizations in the evaluation and adoption of information systems and technologies for strategic advantage as well as in bridging the cultural and communication gaps that often exist between information systems and business function professionals.

Admission to the Degree Curriculum

In addition to meeting the requirements for classified graduate standing and the general requirements for master's degrees as described in Part Two of this bulletin, the student must have satisfactorily completed equivalents of the following courses as prerequisites:

- B A 625 Financial and Management Accounting (3)
- B A 627 Marketing (3)
- B A 628 Operations and Supply Chain Management (3)

Notice of admission with classified graduate standing will be sent to the student upon the recommendation of the Fowler College of Business and the approval of the dean of the Division of Graduate Affairs.

Advancement to Candidacy

All students must satisfy the general requirements for advancement to candidacy, as described in Part Four of this bulletin.

Students concurrently enrolled in deficiency coursework may be given permission to take the comprehensive examination prior to actual completion of all coursework. However, comprehensive examinations will not be evaluated and results will not be reported to the Division of Graduate Affairs until all deficiency coursework has been successfully completed. This may delay graduation.

Specific Requirements for the Master of Science Degree in Information Systems

(Major Code: 07021) (SIMS Code: 222335)

In addition to meeting the requirements for classified graduate standing as described above and the general requirements for master's degrees as described in Part Four of this bulletin, the student must complete a graduate program of at least 36 approved units including at least 27 units in 600- and 700-numbered courses. Up to nine units of coursework may be accepted as transfer credit. Not more than a total of three units in courses Management Information Systems 797 (Research) and Management Information Systems 798 (Special Study), may be accepted for credit toward the degree. With approval of the graduate adviser, a substitute course may be allowed in place of a required course after reviewing student credentials.

Required core courses:

IS Technology

Nine units selected from the following courses:

- MIS 686 Enterprise Data Management (3)
- MIS 687 Business Data Communications (3)
- MIS 691 Decision Support Systems (3)
- MIS 695 Business Systems Analysis and Design (3)
- MIS 697 Project Planning and Development (3)
- MIS 752 Seminar in Supply Chain and Enterprise Resource Planning (3)

IS Management and Analytics

Nine units selected from the following courses:

- MIS 688 Information Systems and Strategies in Organizations (3)
- MIS 748 Seminar in Applied Multivariate Analytics (3)
- MIS 749 Business Analytics (3)
- MIS 750 Strategic Project Management (3)
- MIS 755 Information Systems Security Management (3)
- B A 623 Statistical Analysis (3)

Culminating Experience

Three units selected from the following courses:

- MIS 790 Directed Readings in Management Information Systems (3)

OR

- B A 799A Thesis (3) Cr/NC/RP

Career Track (12 units)

Students select a career track and courses with the approval of the graduate adviser.

- MIS 515 Intermediate Programming for Business Applications (3)
- MIS 705 Communication Strategies (3)
- MIS 744 Seminar in Lean Six Sigma and Baldrige Quality Management (3)
- MIS 753 Global Supply Chain Management (3)
- MIS 754 Seminar in Operations Strategy (3)

Career track courses may include additional department and courses from outside the Fowler College of Business with the approval of the graduate adviser.

The Master of Science degree in information systems requires Plan A, Thesis or Plan B, directed readings in information systems or a written comprehensive examination offered by the department. The program must be approved by the college and departmental adviser.

For regulations concerning grade point averages, final approval for the granting of the degree, award of the degree, and diplomas, refer to the basic requirements for the master's degree as described in Part Four of this bulletin.

Open Elective (3 units)

Three units of elective graduate coursework.

Courses Acceptable for Master's Degree Program in Information Systems (MIS)

Refer to Courses and Curricula and Regulations of the Division of Graduate Affairs sections of this bulletin for explanation of the course numbering system, unit or credit hour, prerequisites, and related information.

UPPER DIVISION COURSES

MIS 515. Intermediate Programming for Business Applications (3)

Prerequisite: Management Information Systems 315 or knowledge of one computer programming language. **Proof of completion of prerequisite required:** Copy of transcript.

Intermediate programming for business applications with Java, C#, or similar languages. Data structures, control structures, and program structures. Use of object-oriented features, classes, subclasses, and inheritance for modeling and processing of business information.

MIS 585. Fundamentals of Cybersecurity Management (3)

Prerequisite: Management Information Systems 483 or 687. Cybersecurity risks, threats, and vulnerabilities. Technologies, procedures, and techniques to assess, control, detect, and remediate threats and vulnerabilities.

MIS 596. Contemporary Topics in Management Information Systems (1-3)

Prerequisites: Business major approved by the Fowler College of Business and consent of instructor.

Contemporary topics in management information systems. May be repeated with new content. See *Class Schedule* for specific content. Limit of nine units of any combination of 296, 496, 596 courses applicable to a bachelor's degree. Credit for 596 and 696 applicable to a master's degree with approval of the graduate adviser.

GRADUATE COURSES

MIS 620. Electronic Business and Big Data Infrastructures (3)

Prerequisite: Business Administration 623. Advanced data analysis and information technology concepts associated with e-business infrastructure and systems architecture.

MIS 680. Information Systems Hardware and Software (3)

Prerequisite: Classified graduate standing. Computer architecture, programming languages, programming systems, and operating systems.

MIS 686. Enterprise Data Management (3)

Prerequisite: Classified graduate standing. Database management technologies to host, secure, and manipulate enterprise data, information, and knowledge assets to create business value. Modeling tools for analyzing and specifying data requirements.

MIS 687. Business Data Communications (3)

Prerequisite: Classified graduate standing. Deployment and management of technologies for integrating resources within and between organizations through secure data communications capabilities. Data network topologies, including wired, wireless, mobile and cloud architectures.

MIS 688. Information Systems and Strategies in Organizations (3)

Prerequisite: Classified graduate standing. Managing information to create business value. Planning, organizing, and leading information systems initiatives. Relationship of data, information, and knowledge to strategic and operational decision making. Global aspects and ethical uses of information systems.

MIS 691. Decision Support Systems (3)

Prerequisite: Completion of MBA core or MS prerequisites. Design, implementation, and integration of computerized decision support systems into business management. Problem representation, modeling, and simulation.

MIS 695. Business Systems Analysis and Design (3)

Prerequisite: Classified graduate standing. Generating business value through analysis and design of information systems to solve problems and exploit opportunities. Feasibility studies, requirements definition, process and data modeling, development and implementation strategies for information systems.

MIS 696. Seminar in Selected Topics (3)

Intensive study in specific areas of information systems. May be repeated with new content. See *Class Schedule* for specific content. Credit for 596 and 696 applicable to a master's degree with approval of the graduate adviser.

MIS 697. Project Planning and Development (3)

Prerequisite: Classified graduate standing. Project development, planning, execution, and control for information systems. Information project development life cycle, structure project planning methodology, theories, techniques, and utilization of project management technologies.

MIS 705. Communication Strategies (3)

Prerequisite: Classified graduate standing. Development of advanced written, oral, and interpersonal communication strategies for the business environment.

MIS 744. Seminar in Lean Six Sigma and Baldrige Quality Management (3)

Prerequisite: Business Administration 628. Applications of lean principles, Six Sigma methodology, and Baldrige processes for business quality, agility, improvement. Advanced concepts, methods, lean tools, statistical quality tools for process improvement.

MIS 748. Seminar in Applied Multivariate Analytics (3)

Prerequisite: Business Administration 623. Applications of various statistical techniques and design of experiments for business. Advanced ANOVA and Taguchi designs, multiple regression modeling methodologies, and multivariate techniques, such as factor analysis, judgment analysis, multiple discriminant analysis, multivariate analysis of variance, and canonical correlation.

MIS 749. Business Analytics (3)

Prerequisite: Business Administration 623.

Business analytics techniques for predictive modeling and customer segmentation. Applications include churn management, business experiments, cluster segmentation, and market basket analysis.

MIS 750. Strategic Project Management (3)

Prerequisite: Business Administration 628.

Managing projects and programs to implement business strategies. Project selection, programs, and portfolios; project organization; resource conflict and resolution; stakeholder management; project team management; project risk assessment and mitigation.

MIS 752. Seminar in Supply Chain and Enterprise Resource Planning (3)

Prerequisite: Business Administration 628.

Methodology, theory, and systems to plan and control supply chain and enterprise resources. Integrated processes of sales and operations planning, corporate accounting, materials requirement, procurement, capacity planning, and warehouse management in a simulated enterprise environment.

MIS 753. Global Supply Chain Management (3)

Prerequisite: Classified graduate standing.

Advanced concepts, method, and implementation of global supply chain strategies and management; global sourcing and supplier development; global logistic network and management; information technology and e-business for supply chain; supply chain design and optimization; performance metrics and measurements.

MIS 754. Seminar in Operations Strategy (3)

Prerequisite: Business Administration 628.

Strategic issues in operations and their integration with other functional areas. Includes operations strategy, product and process planning, experience curves, productivity measurements, and information technology implementation.

MIS 755. Information Systems Security Management (3)

Prerequisite: Classified graduate standing.

Information systems management. Focus on creation of a security plan for an organization to include risk analysis, security issues, security design, security plan, disaster recovery/business continuity, and threat analysis.

MIS 790. Directed Readings in Management Information Systems (3) Cr/NC

Prerequisite: Advancement to candidacy.

Preparation for the comprehensive examination for students.

MIS 797. Research (3) Cr/NC/RP

Prerequisite: Advancement to candidacy.

Research in the area of management information systems. Maximum credit six units applicable to a master's degree.

MIS 798. Special Study (1-3) Cr/NC/RP

Prerequisite: Consent of staff; to be arranged with department chair and instructor.

Individual study. Maximum credit six units applicable to a master's degree.

For additional courses applicable to the Master of Science degree in Information Systems see: Business Administration 623. Statistical Analysis
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