

MANAGEMENT INFORMATION SYSTEMS

For undergraduate curriculum in business, major in management information systems.

The Department of Supply Chain and Information Systems offers a major in management information systems. Students will complete the general education requirements (including business foundation courses), business core requirements for the bachelor of science (BS) degree, and 18 additional credits in the major.

Management Information Systems is the analysis and use of information systems and technologies to support problem solving and decision making within and across organizations. Organizations and companies use data, most often in digital form, to conduct nearly every part of their businesses and functions. The program provides students with the core knowledge related to every dimension of information systems and technologies, including the creation and implementation of software and databases, to information security, analytics, and the user interface. The program takes a balanced approach to the management information systems major, with both technical and managerial coursework.

The study of Management Information Systems prepares students for professional careers with a wide variety of firms and roles, ranging from small start-up firms to large multinational corporations. Common job titles include business analyst and systems analyst. Students are also pursuing careers in Information Technology consulting.

The MIS major requires students to take 18 credit hours in the management information systems area, including 12 credit hours of required core courses and 6 credit hours of electives. The required core courses are:

MIS 307	Intermediate Business Programming	3
MIS 310	Information Systems Analysis	3
MIS 320	Database Management Systems	3
MIS 340	Project Management	3
Total Credits		12

The remaining 6 credits can be taken from the department approved electives, preferably with the specified clusters that focus on specific IT job related knowledge and skills (application development, IT infrastructure and security, business analytics, and supply chain technology). Students are encouraged to take electives that cover multiple clusters to enhance marketability and career flexibility.

The department also offers a minor for non-Management information Systems majors in the Ivy College of Business. The minor requires 15 credits from an approved list of courses, of which 9 credits must stand

alone. The 15 credits must include MIS 301 Management Information Systems. Students with declared majors have priority over students with declared minors in courses with space constraints.

Management Information Systems, B.S.

Freshman

Fall	Credits Spring	Credits
BUSAD 102 (or 103)	1 BUSAD 250	3
COM S 113	3 MATH 151	3
ECON 101	3 ECON 102	3
ENGL 150	3 HUM/SOC SCI	3
MATH 150	3 International Perspective	3
LIB 160	1	
HUM/SOC SCI	3	
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		17
		15

Sophomore

Fall	Credits Spring	Credits
BUSAD 203	1 Core Business Courses	6
ACCT 284	3 SP CM 212	3
ENGL 250	3 ACCT 215	3
STAT 226	3 PHIL 230	3
HUM/SOC SCI	3	
MIS 207	3	
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		16
		15

Junior

Fall	Credits Spring	Credits
Core Business Courses	6 Core Business Courses	6
Natural Science	3 Major Courses	6
ENGL 302	3 U.S. Diversity or Elective [#]	3
Major Course	3	
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		15
		15

Senior

Fall	Credits Spring	Credits
Major Courses	6 MGMT 478*	3
Core Business Course	3 Major Course	3
General Elective	3 General Electives	8
International/Global Perspective	3	
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		15
		14

Total Credits: 122

@ Courses in these requirements may also be used as Global Perspective.

- # US Diversity courses may be used to satisfy HUM/SOC SCI.
- * All core classes must be completed prior to taking MGMT 478 in the graduating semester.

Students must be admitted to the professional program in business to major in management information systems. The requirements to enter the professional program are:

1. Completion of 30 credits, Foundation Courses, ENGL 150, and all ENGL 101/99 courses if required.
2. A minimum GPA of 2.50 either cumulative or in the Foundation Courses.

Graduation Requirements:

1. Grade of "C" or higher in at least 30 credits of Core and Major courses.
2. 42 credits of 300+ level courses.
3. 50% of required Business courses must be earned at ISU.
4. At least 32 credits and the LAST 32 credits must be earned at ISU.
5. 122 Credits minimum and a Cumulative GPA of at least 2.00
6. Grade of "C" or higher in 2 of the 3 required ENGL courses.

Graduate Study

The Department of Supply Chain and Information Systems participates in the MS in Information Systems (MSIS), the full-time and part-time Master of Business Administration (MBA) and the PhD in Business and Technology programs. The department also participates in an interdepartmental MS in Information Assurance as well as in a master's and PhD program in Human Computer Interaction.

The MBA is a 48-credit, non-thesis, non-creative component curriculum. Thirty of the 48 credits are core business courses and the remaining 18 credits are graduate electives. Students may obtain a specialization in technology and innovation management within the MBA program.

The MSIS is a 30-credit (minimum) curriculum designed around three interrelated areas – business foundation, IS core, and electives. All students are expected to be familiar with basic computing skills before entering the program. The MSIS program will educate students on applying IS theory and concepts to modern IS development through classes that enable them to learn and use the latest software in application projects. Students graduating from the program will have advanced technical and managerial skills to develop and manage information systems projects.

The PhD in Business and Technology is a 56-credit curriculum (minimum) which includes a 12-credit dissertation designed around four interrelated

areas—core, specialization, minor, and research methods—and the dissertation. The Management of Information Systems (MIS) specialization examines issues related to the development, building, management, and use of information and knowledge-based technologies. Such technologies enable users to collect organizational data, provide a platform for organizing and disseminating the data, and offer operational, decision support, and knowledge management tools through which users can leverage data and information for making better organizational decisions. Students in the MIS specialization will study areas such as information technology analysis and development, database and knowledge management systems, decision support and data mining, human computer interaction, system security and integrity, and project management and collaborative teamwork.

Courses primarily for undergraduates:

MIS 207: Fundamentals of Computer Programming

(Cross-listed with COM S). (3-1) Cr. 3.

Prereq: MATH 150 or placement into MATH 140 or higher

An introduction to computer programming using an object-oriented programming language. Emphasis on the basics of good programming techniques and style. Extensive practice in designing, implementing, and debugging small programs. Use of abstract data types. Interactive and file I/O. Exceptions/error-handling. This course is not designed for computer science, software engineering, and computer engineering majors. Credit may not be applied toward graduation for both Com S 207/ MIS 207 and Com S 227.

MIS 301: Management Information Systems

(3-0) Cr. 3.

Prereq: COM S 113 or BUSAD 150

The role of information technology in organizations. Overview of methodologies for design and development of systems including decision support systems, expert systems, data bases, end-user computing, etc. Computer applications relate concepts to practice. Lecture and laboratory work emphasizes the enabling role of IT in contemporary organizations.

MIS 307: Intermediate Business Programming

(3-0) Cr. 3.

Prereq: MIS 207/COM S 207 or COM S 227; credit or enrollment in MIS 301

Introduction to the concepts and use of data structures, file accesses and object oriented programming methodologies in contemporary business environments. Application development environments will be covered.

MIS 310: Information Systems Analysis

(3-0) Cr. 3.

Prereq: credit or enrollment in MIS 301

Critical analysis of business processes, data and process modeling, feasibility studies, CASE tools, and developing system design specifications.

MIS 320: Database Management Systems

(3-0) Cr. 3.

Prereq: Credit or enrollment in MIS 301

Database design, development, and implementation. Focus on data models, both classical and object oriented. Uses relational and/or object oriented database management systems.

MIS 340: Project Management

(Cross-listed with SCM). (3-0) Cr. 3.

Prereq: credit or enrollment in MIS 301

Equips students to support team activities in the general project management environment and better manage their careers. Practical experience using project management techniques and tools. Course topics include project initiation and execution, risk assessment, estimating and contracts, planning, human factors, and standard methods.

MIS 368: Spreadsheet-based Marketing Analytics

(Cross-listed with MKT). (3-0) Cr. 3. F.S.

Prereq: MKT 340

Use of spreadsheets to conduct various analyses to support marketing strategies. Topics include data visualization and exploration, marketing models and consultative problem-solving skills. Development of skills such as formulating problems, structuring and prioritizing problems, synthesizing results and communicating intuition from quantitative analyses.

MIS 407: Advanced Business Programming

(3-0) Cr. 3.

Prereq: MIS 307

Advanced software development and topics in contemporary programming languages. Topics include basic syntax, advanced programming techniques, file structures and management, database access, algorithm design, web forms and graphical user interfaces.

MIS 434: Electronic Commerce Strategy

(3-0) Cr. 3.

Prereq: MIS 301, MKT 340, SCM 301

Overview of business strategies and technologies used for electronic commerce. Emphasis is on the strategic, operational, and technical issues associated with global electronic commerce using class lecture/discussion and case studies.

MIS 435: Information Systems Infrastructure

(3-0) Cr. 3.

Prereq: MIS 301

Overview of Internet and telecommunications technology used in business applications. Understand Internet and network protocols, network and application architectures, design, and implementation.

MIS 436: Introduction to Business Analytics

(3-0) Cr. 3.

Prereq: MIS 320

Introduction to the field of business analytics (BA). Students will examine BA processes and techniques used in transforming data to knowledge and creating value for organizations. Business cases, presentations by business professionals, class lectures and discussions on data analysis, design and modeling, and extensive hands-on analytical exercises.

MIS 439: Topics in Management of Information Systems

(3-0) Cr. 3. Repeatable.

Prereq: MIS 301, permission of instructor

A variety of topics will be covered and topics may vary between semesters. Some of the topics are information resources management, electronic commerce, decision support systems, and expert systems.

MIS 440: Supply Chain Information Systems

(Cross-listed with SCM). (3-0) Cr. 3.

Prereq: MIS 301, SCM 301

Internal and inter-organizational information systems necessary for a supply chain to achieve competitive advantage. Topics include: design, development, implementation, and maintenance of supply chain information systems; enterprise resource planning; advanced planning and scheduling, manufacturing execution systems; and the interface between manufacturing planning and control processes, logistics processes, and the information system.

MIS 445: Enterprise Systems and Architecture

(3-0) Cr. 3.

Prereq: MIS 301

Contemporary theories, concepts, and practices in network infrastructure, network design, and information security. Design, install, and administer a complex network infrastructure. Study security threats and attacks and countermeasures. Investigate exposure to attacks, firewalls, and development of intrusion detection systems. Other security topics such as risk management, IT audit, and security regulations will also be addressed.

MIS 446: Advanced Business Analytics

(3-0) Cr. 3.

Prereq: MIS 301 and MIS 320

Projects-based course which provides an in-depth understanding of BA methods of visualization, data mining, text mining, web-mining, and predictions through the use of specific BA tools. For students who are interested in understanding advanced techniques and applications of data analytics and acquiring hands-on skills for making intelligent business decisions in data-rich organizations.

MIS 447: Information Systems Development

(3-0) Cr. 3.

Prereq: MIS 301 and MIS 310

Design of business systems using contemporary tools and methods such as SQL, CASE tools, OOD tools, etc. Focuses on synthesizing concepts from earlier MIS courses.

MIS 450: Enterprise Resource Planning Systems in Supply Chain

(Cross-listed with SCM). (3-0) Cr. 3.

Prereq: SCM 301, MIS 301 or I E 148, I E 341

Examination of the role of enterprise resource planning systems (ERP) in the supply chain. Hands-on experience with a major software application in use by many corporations to manage and improve the efficiency of their supply chains and operations. Students will develop a more process-centric perspective about how a supply chain operates and how ERP enables and supports such operations.

MIS 490: Independent Study

Cr. 1-3. Repeatable.

Prereq: MIS 301, senior classification, permission of instructor

MIS 495: Case Practicum

(3-0) Cr. 3. Repeatable. F.S.

Prereq: MIS 301

Students explore different practical scenarios related information systems projects and cases. Students acquire necessary skills and knowledge to solve practical issues associated with presented cases and problems. Students compete at different venues around the country.

Courses primarily for graduate students, open to qualified undergraduates:

MIS 501: Management Information Systems

(3-0) Cr. 3.

Prereq: Enrollment in MBA program or departmental permission.

This course exposes the student to current theories and practices appropriate for understanding the role and application of information systems for individuals, organizations, and society within a globally competitive context. The course focuses on information technology and its uses in improving work practices, products, and tools for individuals and organizations. The course also addresses issues pertaining to current and emerging topics in the development and use of technology, the role of technology in and its alignment with organizational strategy and sustainable business practices, information system planning and the development of enterprise architectures, and human interface and personal characteristics in the design and use of technology.

MIS 532: Advanced Business Software Development

(3-0) Cr. 3.

A survey of business-oriented programming languages with emphasis on state-of-the-art development techniques for business software. Topics include object-oriented and Internet programming issues and methods.

MIS 533: Data Management for Decision Makers

(3-0) Cr. 3.

Prereq: MIS 501

Addresses data needs of functions such as marketing, finance, and production. Advanced skills needed to design, develop and use database, data warehousing and data mining systems for effective decision support. Emphasis on importance of contemporary technologies.

MIS 534: Electronic Commerce

(3-0) Cr. 3.

Prereq: MIS 501

Overview of how modern communication technologies including the internet and world wide web have revolutionized the way we do business. Provides an understanding of various internet technologies and how companies are using the internet for commercial purposes. Explores future scenarios on the use of these technologies and their impact on various industries and the society.

MIS 535: Telecommunications Management

(3-0) Cr. 3.

Prereq: MIS 501

Issues involved in the management of telecommunications function. Overview of communications technology used in various business applications, local area network, wide area network, broad band network, wireless and voice networks. Internet technologies and protocols. Analyzing the strategic impact of these technologies on organizations. Strategic planning for telecommunications, including network planning and analysis.

MIS 536: Business Analytics Foundation

(3-0) Cr. 3.

Introduction to Business Analytics (BA) concepts and tools. Hands-on lab exercises and business case studies in data preparation, data querying and data visualization. Also covers various modeling techniques in predictive and prescriptive analytics.

MIS 537: Project Management

(3-0) Cr. 3.

Prereq: MIS 501

Prepares students to support team activities in the general project management environment and provides them with a working understanding of the full scope of project management activities. Students will also have practical experience using project management techniques and tools. Course topics include project initiation and execution, risk assessment, estimating and contracts, planning, human factors, and standard methods. The course follows the recommended content areas of the Project Management Institute, and provides students with a recognized foundational training in project management.

MIS 538: Business Process Systems

(3-0) Cr. 3.

Prereq: MIS 501

Examine current and historical perspectives on business process management. Topics include process identification, mapping, and improvement. Additional topics will address business process automation and integration, business process outsourcing. Investigate current and potential tools and methods for business process management. Include process management projects.

MIS 539: Topics in Management of Information Systems

(3-0) Cr. 3. Repeatable.

Prereq: MIS 501

A variety of topics may be offered in different semesters. Topics may include electronic commerce, information resources management, decision support systems, and expert systems.

MIS 544: Social Media Business Applications and Analytics

Cr. 3. SS.

Prereq: NONE

This course is designed to educate students about the the role of new collaborative social technologies and analysis of social media data. Exploration of strategic and operational applications of social media and of tools that support the analysis of social network and social media data. Application of text analysis and social network theory. None

MIS 546: Advanced Business Analytics

(3-0) Cr. 3. F.S.

An in-depth discussion of various advanced topics in Business Analytics (BA) such as Big Data Analytics, Text Analytics, and Web Analytics. Extensive hands-on exercises of using BA tools to solve real-world problems. Preparation for students' capstone projects.

MIS 590: Special Topics

Cr. 1-3. Repeatable.

Prereq: Permission of instructor

For students wishing to do individual research in a particular area of MIS.

MIS 598: Research Seminar in Management Information Systems

(3-0) Cr. 3.

Prereq: Graduate classification

Examines issues such as the nature and content of information systems research; aspects of starting and pursuing research topics in information systems; exploring and understanding relevant research methods and tools. Develop preliminary research proposals.

MIS 599: Creative Component

Cr. 3.

Prereq: Graduate classification, permission of supervisory committee chair

Preparation and writing of creative component.

Courses for graduate students:**MIS 601: Behavioral Issues in IS Research**

(3-0) Cr. 3.

Prereq: MIS 501 or equivalent, enrollment in PhD program

The state of behavioral research in the IS function. MIS activities in an organization span the following three major areas: design and implementation of the MIS, use of the MIS, and management of the MIS function. Each of these processes is carried out at several levels: individual, group, organizational and inter-organizational. Identify behavioral issues of relevance for the cells defined by the process and level dimensions. Reading and discussion of the research literature surrounding the development, use, and implications of information technology.

MIS 602: Current Issues in IS Research

(3-0) Cr. 3.

Prereq: MIS 501 or equivalent, enrollment in PhD program

Three fundamental areas of Information Systems, namely, infrastructure, management, and processes. Infrastructure studies examine the IT architecture including computing, communication, data, and application. Management focuses on addressing the value added notion of IT. Finally processing addresses topics related to enabling role of IT in myriad of areas.

MIS 603: Seminar on IT Strategy and Structure

(3-0) Cr. 3.

Prereq: MIS 601

Strategic issues in IT management. Address issues such as aligning IT strategy with corporate strategy and functional strategies, IT structure, valuation, governance and control, and related topics. Provide students with research skills related to the boundary between IT and the firm's external environment.

MIS 604: Collaboration, Knowledge, and Intelligence in Organizations

(3-0) Cr. 3.

Prereq: MIS 601

Research issues in the emerging areas of collaboration, knowledge management, and enterprise intelligence. Topics will include emerging and contemporary technologies of Data Mining, Knowledge Discovery from Databases, Web Mining, organizational memory, and knowledge management.

MIS 650: Research Practicum I

(1-0) Cr. 1.

Prereq: enrollment in the PhD program

Preparation of a research manuscript to be submitted to a peer-reviewed academic journal. Students will work with a faculty mentor on a research project.

MIS 651: Research Practicum II

(1-0) Cr. 1.

Prereq: enrollment in the PhD program

Preparation of a second research manuscript to be submitted to a peer-reviewed academic journal. Although students work under the supervision of a faculty mentor, the students will take independent responsibility for the research project.

MIS 655: Organizational and Social Implications of Human Computer Interaction

(Cross-listed with HCI). (3-0) Cr. 3.

Prereq: Graduate classification

Examine opportunities and implications of information technologies and human computer interaction on social and organizational systems. Explore ethical and social issues appurtenant to human computer interaction, both from a proscriptive and prescriptive perspective. Develop informed perspective on human computer interaction. Implications on research and development programs.

MIS 699: Research

Cr. 3-6. Repeatable.

Prereq: Graduate classification, permission of dissertation supervisor
Research.