MANAGEMENT INFORMATION SYSTEMS

Courses

MIS 101. Using Information Technologies for Personal Productivity. 1 Hour
Ability to apply information technologies effectively is important for a business career. Understanding features of information technologies for personal productivity, including computer hardware, operating systems, file storage & management, virtual computing, collaborative document editing, and security. Advanced word processing tools, presentation graphics, and basic spreadsheets are introduced. Business majors only.

MIS 150. Professional Development Experiences in Information Systems. 0 Hours
Participation in experiences to promote development of practical knowledge, career networks, and professional skills relevant to the field of information systems.

MIS 203L. Introduction to Spreadsheets. 1 Hour
Introduction to electronic spreadsheet software (e.g., Microsoft Excel) skills. Prerequisites: BIZ 200 or BIZ 201 or permission.

MIS 220. Exploring Careers in Information Systems. 1 Hour
Designed to immerse students into the contemporary issues of management information systems. Site visits and guest lectures from management information systems leaders. Priority given to first and second year students. Satisfactory/No Credit. Prerequisite(s): Permission of department chairperson.

MIS 300. Survey of Management Information Systems. 3 Hours
Introduction to management information systems concepts, terminology, purposes, and applications for the nonbusiness student. Not open to students in the School of Business Administration or to those with credit in MIS 301. Prerequisite(s): Non-business majors only.

MIS 301. Information Systems in Organizations. 3 Hours
Survey of theory and applications of computer-based information systems in organizations. The role of information in organizational processes, current information technology, decision support systems, and end-user computing and distributed processing systems. Sophomores are encouraged to take this course during their second term. Prerequisites: BIZ 200 or BIZ 201 and Business majors only.

MIS 302. Systems Thinking in Organizations. 3 Hours
Focus on understanding systems thinking, decision making, and information systems in organizations. Learn general systems concepts, system diagramming tools, and different approaches to systems thinking as a mode of inquiry. Compare modes of inquiry. Develop a learning community to build knowledge. Apply knowledge by (1) analyzing organizations as systems and the information systems and technologies used to support decision making and (2) suggesting improvements. Prerequisite(s): Completed 45 semester hours.

MIS 303L. Using Spreadsheets in Business. 1 Hour
Use of electronic spreadsheets (e.g., Microsoft Excel) as a tool to support business decision making. Prerequisite(s): BIZ 200 or BIZ 201 or MIS 203L or permission.

MIS 305. Introduction to Business Applications: Problem Solving with Visual Tools. 1 Hour
Introduction to basic programming structures, graphical user interface design, and other tools using a visual programming language such as Visual Basic.net. Prerequisite(s): BIZ 200 or BIZ 201 or equivalent.

MIS 307L. Developing Spreadsheet Applications. 1 Hour
Application of computer programming concepts to the spreadsheet environment. Development of full-featured spreadsheet applications. Prerequisite(s): MIS 303L, MIS 305.

MIS 325. Programming for Business Systems. 3 Hours
Process of software development for business system implementation. Fundamentals of programming logic and object-oriented programming concepts for the design, development, and testing of computer solutions for business problems using a contemporary programming language.

MIS 360. E-Commerce Processes & Technology. 3 Hours
Introduction to information systems technologies and techniques that enable business-to-business and business-to-consumer electronic relationships. Development of interactive websites with an introduction to client- and server-side scripting and simple database access. Prerequisite(s): (MIS 300 or MIS 301); (MIS 305 or equivalent); (BAI 103L or equivalent HTML knowledge).

MIS 365. Protecting Personal Information Resources in an Interconnected World. 3 Hours
In an increasingly interconnected world, threats to the confidentiality, integrity and availability of valuable information resources are increasingly salient. This creates particular challenges for the individual who wishes to put online resources to their fullest use. This course will identify threats to confidentiality, integrity and availability of information resources, and how individuals can put in place appropriate controls to protect their personal information. Some discussion of how these basic concepts apply in organizational membership will also be discussed. Not available as elective for MIS majors. This course may not be used as an elective for any minor in the MOA department (e.g. CSM, BIN, MIS, OPS, BAN).

MIS 366. Business Intelligence. 3 Hours
The use of computer-based data analysis tools to support managers in problem solving and decision making. Prerequisites: BAN 211 or DSC 211; MIS 300 or MIS 301 and MIS 385 (may be taken concurrently).

MIS 368. Principles of Information Security Management. 3 Hours
Addresses issues relevant to creating a systematic information assurance, compliance control structure and systematic security procedures. Information security policy, assets, physical and logical information resource security, business continuity, and compliance with relevant security standards are covered. Prerequisite(s): MIS 300 or MIS 301 or CJS 214.

MIS 380. Systems Analysis & Re-Engineering. 3 Hours
Concepts, methods, techniques, and tools needed to initiate a systems development project and to conduct the requirements collection, analysis, and structuring activities of systems development. Structured life cycle and alternatives. Re-engineering business processes through information systems. Prerequisite(s): MIS 300 or MIS 301; MIS 385 (may be taken as a corequisite); Business majors only or permission of department chairperson. Corequisite(s): MIS 381.

MIS 381. Principles of Project Management. 1 Hour
Introduction to project management concepts and ideas. Possible use of an existing team project from another course to learn principles of scheduling, team management, client management, etc., emphasizing best project management practices. Prerequisite(s): MIS 300 or MIS 301.

MIS 385. Systems Implementation with Database Management Systems. 3 Hours
Concepts, techniques, and tools to convert a logical system design into a working application using a relational DBMS. File and data structures, logical and physical database design, security and data integrity, file design and processing. DBMS functions, SQL, 3GL and 4GL access to databases, linkage to WWW pages, database architectures, CASE. Prerequisites: MIS 300 or MIS 301.

MIS 392. Introduction to Programming for Analytics. 3 Hours
This introductory course equips students with foundational Python skills essential for data-driven decision-making. The curriculum begins with the logic of algorithms - covering sorting, searching, and recursion - before transitioning into Python syntax, including data structures, loops, and functions. A significant focus is placed on the Pandas library for efficient data manipulation and real-world business analysis. Beyond technical proficiency, the course is designed to foster critical thinking and systematic problem-solving, enabling students to translate complex business requirements into executable code while navigating the nuances of data quality and exceptions. Prerequisites: MIS 300 or MIS 301.

MIS 401. Emerging Technologies in Information Systems. 3 Hours
This course will explore various emerging theories and technologies in information systems. Through lectures, class discussions, and hands-on designs and implementations, students will learn how the emerging theories and technologies can be applied to solving business problems and making strategic decisions in organizational settings. The specific content of the course each semester is to be taught in a modular format based on recent innovations and commercial applications of information technologies. Prerequisite(s): MIS 325 and MIS 380 and MIS 385.

MIS 410. Object-Oriented Analysis & Design. 3 Hours
Introduction to object-oriented concepts and techniques for analyzing and designing systems. Systems development project using an object-oriented CASE tool. Prerequisite(s): MIS 301 or permission of instructor; MIS 305 recommended.

MIS 420. Expert & Knowledge-Based Systems. 3 Hours
Introduction to artificial intelligence and expert and knowledge-based systems; knowledge acquisition, implementation, and validation; advanced topics; applications to business. Use of expert system software. Prerequisite(s): BAI 103L or equivalent; OPS 375 or DSC 375 recommended.

MIS 425. Information for Total Quality. 3 Hours
Theory and practice of total quality management (TQM); applications of TQM in the information systems function, information system requirements for TQM programs. Prerequisite(s): MIS 301; OPS 301.

MIS 430. Telecommunications & Networking. 3 Hours
Introduction to computer-based communication networks, underlying concepts, basic hardware components and operating systems, network architectures and protocols, data integrity and security, message routing, network management. Prerequisite(s): MIS 368 (may be taken as corequisite).

MIS 460. Advanced Web Development. 3 Hours
Study of web development concepts and techniques. Design and development of dynamic web-sites using technologies such as ASP.NET. Prerequisite(s): MIS 305 or equivalent.

MIS 461. E-Business. 3 Hours
Models of how to conduct business electronically. Topics include different forms of e-business, products and services provided on the Internet, how to combine electronic business with brick-and-mortar business, and keys to success for electronically enhanced businesses. Prerequisite(s): MIS 301.

MIS 465. Project I - Project Management and Analysis. 3 Hours
As the first of a two-course sequence, this undergraduate course covers the essential principles, tools, and best practices of project management, equipping students with the skills to effectively plan and execute information systems project work. Offered fall semester only. Prerequisite(s): MIS 325 and MIS 380 and MIS 385.

MIS 467. Data Warehousing. 3 Hours
Purpose, design, implementation, and effective use of data warehouses and data warehousing technologies. Topics include data warehouse design, data marts, data quality management, extract-transform-load process, and business intelligence. Prerequisite(s): MIS 300 or MIS 301, MIS 385.

MIS 468. Internet Security. 3 Hours
This course provides students with an understanding of both defensive and offensive issues of information security. The course includes instruction on information security theory, psychological operations, hacking, viruses, and systems management. The course emphasizes security for e-commerce on the Internet. Prerequisite(s): MIS 430.

MIS 475. MIS Project II-Design & Implementation in Teams. 3 Hours
Continuation of MIS 465. With its organizational client, each team carries its project as far as possible toward final design and actual implementation. Students are guided to reflect about how their UD educational experience has influenced understanding of their major in terms of vocation. Emphasis on written and oral communications, including team-prepared reports and presentations. Offered spring semester only. Prerequisite(s): MIS 150, MIS 465.

MIS 475A. Information Security Consulting in Teams. 3 Hours
With an organizational client, each team assesses the cybersecurity posture of an organization, an information system implementation or information system development project using an appropriate framework (e.g. CMM, NIST RMF, NIST CSF). Students are guided to reflect about how their UD educational experience has influenced understanding of their major in terms of vocation and at least one other relevant institutional learning goal. Emphasis on written and oral communications, including team-prepared reports and presentations. Offered spring semester only. Prerequisite: MIS 430. Corequisite: MIS 468.

MIS 491. Honors Thesis. 3 Hours
Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

MIS 492. Honors Thesis. 3 Hours
Selection, design, investigation, and completion of an independent original research thesis under the guidance of a departmental faculty member. Restricted to students in the University Honors Program with permission of the director of the program and the departmental chairperson.

MIS 494. Seminar in Management Information Systems. 1-4 Hours
Study of selected technical and/or organizational issues in information systems. Topics vary from time to time. May be taken more than once if topics change. Title will reflect topics covered in a particular offering.

MIS 497. Laboratory Work Experience. 1-6 Hours
Under faculty sponsorship and in association with a participating industrial, commercial, educational, health-care, or governmental organization; practical experience in work associated with the student's major concentration. (See internship coordinator for details.) Prerequisite(s): Permission of department chairperson.

MIS 498. Cooperative Education. 1-6 Hours
Optional full-time work period off campus alternating with study period on campus. (See Chapter X; consult Cooperative Education Office for details.) Prerequisite(s): Permission of department chairperson.

MIS 499. Independent Study in Management Information Systems. 1-6 Hours
Research in conjunction with a faculty member on a subject within the general area of management information systems. Open only to juniors or seniors who have attained a cumulative grade point average of 3.0 or above. Prerequisite(s): Permission of department chairperson.

MIS 616. Project Management for Professionals. 3 Hours
Project-oriented work makes up the bulk of managerial activity in organizations and consequently knowledge of project management principles is valued highly. This course offers a broad review of issues and approaches to contemporary professional project management useful for any MBA student and future manager. Graduate Standing.

MIS 622A. Security Management for Informational Systems. 3 Hours
Addresses issues relevant to creating and managing a systematic security process in organizations. Information security policy, assets, physical and logical information resource security, business continuity, and compliance with relevant security standards are covered. Prerequisites: MBA 560 or MBA 660.

MIS 661A. Problem Solving Methods and Tools. 3 Hours
Overview of organizational decision making. Problem solving steps and algorithms. Introduction to programming. Introduction to specialized software for data analytics.

MIS 662A. Security Management for Informational Systems. 3 Hours
Addresses issues relevant to creating and managing a systematic security process in organizations. Information security policy, assets, physical and logical information resource security, business continuity, and compliance with relevant security standards are covered. Prerequisites: MBA 560 or MBA 660.

MIS 662B. Telecommunications and Networking. 3 Hours
Introduction to management of computer-based communication networks. Includes underlying concepts, basic hardware components and operating systems, network architectures and protocols, data integrity and security, message routing, network resource management. Prerequisites: MBA 560 or MBA 660.

MIS 662C. Internet Security. 3 Hours
Provides managers with an understanding of both defensive and offensive issues surrounding the security of computer-based information networks. The course includes instruction on theory about information security, psychological operations, hacking, viruses, network systems management, and security for e-commerce. Prerequisite(s): MBA 662B.

MIS 663A. Business Analytics - Processes and Techniques. 1.5 Hour
Survey of the main phases of the life-cycle of analytics, including information requirements determination, data acquisition, analysis with descriptive, predictive, and prescriptive models, visualization, analysis presentation, and delivery. Hands-on practice with creating visualization and dashboards and with using data mining tools to analyze data. Prerequisites: BAN 611 or MBA 511 or MBA 611.

MIS 664. Database Management. 3 Hours
Introduction to databases and their management. File organization and data structures; database management systems; major data models; conceptual, logical, and physical database design; data definition and manipulation with SQL; data administration; and client/server and distributed databases. SQL-based software tool for database project. Prerequisites: MBA 560 or MBA 660.

MIS 664A. Data Management for Analytics. 3 Hours
Phases in creating relational databases systems for collecting, storing, and extracting data for business analysis including use of the Structured Query Language (SQL). Data quality issues. Steps in creating and operating a data warehouse, including multi-dimensional modeling, extracting, transforming, and loading data for business analysis. Prerequisites: MIS 661A.

MIS 665. System Analysis & Design. 3 Hours
Introduction to object-oriented concepts and techniques for analyzing and designing systems. Activities performed and models created during the different phases of the development life cycle. Systems development project using a CASE tool. Prerequisites: MBA 560 or MBA 660.

MIS 667A. Advanced Business Intelligence. 3 Hours
Supporting business intelligence for organizational decision making through building visualizations and interactive dashboards. Tools and analytical methods for acquiring data, preparing and organizing data, identifying key performance indicators, crafting visualizations, and building interactive dashboards using Python-based tools and libraries. Prerequisites: MBA 663A or BAN 663 or MIS 663A (may be taken as a co-requisite); MIS 661A.

MIS 667B. Data Warehousing. 3 Hours
Emphasizes the purpose, design, implementation, and effective use of data warehouses and data warehousing technologies. Various schemas for the design of a data warehouse, modeling time in a data warehouse, data quality management for building a data warehouse from operational data stores and legacy applications, and technologies to populate and retrieve information from data warehouses will be covered. Related topics of data marts, analytical processing, data mining, and active data warehousing will also be addressed. MBA 664 is required unless student has database management coursework or relevant database management experience. Prerequisites: MBA 560 or MBA 660; MBA 664.

MIS 668. Advanced Website Development. 3 Hours
Covers issues involved in developing websites for business usage. Issues covered or investigated include: site layout, implementation and management, good site design practices, connecting websites to company data, and processing secure transactions across the Web. HTML and a high-level programming language required or permission of instructor.

MIS 668A. Special Topics in Data Analytics. 3 Hours
Selected advanced business intelligence and data analytics topics, e.g., big data, social network analysis, web (social media) analytics, text analytics, text scraping and others, as applied to business scenarios. Seminar-based or survey-based course. Project intensive. Prerequisites: BAN 614 (may be taken concurrently).

MIS 669. Special Topics in Management Information Systems. 1-3 Hours
Advanced and current topics in management information systems. Topics vary. Prerequisite(s): Permission of instructor.