

# INFORMATION SYSTEMS MANAGEMENT

The Information Systems Management major is designed to prepare students for positions in system development, system analysis, database administration, networking, and as ISM specialists in user departments such as finance, human resource management, marketing, and operations management. The major is also designed to prepare students to assume increasing levels of managerial responsibility as their career progresses. This course of study includes the components of computer-based information systems: hardware, software, telecommunications, databases, people (the people who develop, manage, run, program, maintain, and use the systems), and procedures (strategies, policies, methods, and rules involved in all aspects of information systems). This program teaches these principles and their application in a holistic and integrated fashion using a combination of traditional classroom instruction, case studies, projects, and hands-on methods.

In addition to major requirements, students must complete the BBA Degree Requirements ([http://catalog.umd.umich.edu/undergraduate/college-business/#BBA\\_Degree](http://catalog.umd.umich.edu/undergraduate/college-business/#BBA_Degree)).

## Information Systems Management major (without a concentration)

| Code                                   | Title                          | Credit Hours |
|--|--------------------------------|--------------|
| <b>Required</b>                        |                                |              |
| ISM 301                                | Bus Application Programming    | 3            |
| ISM 321                                | Database Systems I             | 3            |
| ISM 331                                | Info Systems Development       | 3            |
| ISM 351                                | Networking and Collab Comp     | 3            |
| ISM 431                                | Database Systems II            | 3            |
| Select two courses from the following: |                                | 6            |
| ISM 302                                | Object-Oriented Programming    |              |
| ISM 347                                | Information Visualization      |              |
| ISM 371                                | IT Strategy: Disrupting Norms  |              |
| ISM 382                                | Advanced Computer Applications |              |
| ISM 383                                | Info Technology Security       |              |
| ISM 387                                | Digital Security               |              |
| <b>Total Credit Hours</b>              |                                | <b>21</b>    |

## Information Systems Management major with a concentration in Information Systems Security

| Code            | Title                       | Credit Hours |
|-----------------|-----------------------------|--------------|
| <b>Required</b> |                             |              |
| ISM 301         | Bus Application Programming | 3            |
| ISM 321         | Database Systems I          | 3            |
| ISM 331         | Info Systems Development    | 3            |
| ISM 351         | Networking and Collab Comp  | 3            |
| ISM 383         | Info Technology Security    | 3            |
| ISM 387         | Digital Security            | 3            |

|                           |                     |           |
|---------------------------|---------------------|-----------|
| ISM 431                   | Database Systems II | 3         |
| <b>Total Credit Hours</b> |                     | <b>21</b> |

## Information Systems Management Minor

| Code                                   | Title                          | Credit Hours |
|--|--------------------------------|--------------|
| ISM 310                                | Info Systems in Management     | 3            |
| ISM 321                                | Database Systems I             | 3            |
| ISM 351                                | Networking and Collab Comp     | 3            |
| Select two courses from the following: |                                | 6            |
| ISM 301                                | Bus Application Programming    |              |
| ISM 302                                | Object-Oriented Programming    |              |
| ISM 331                                | Info Systems Development       |              |
| ISM 371                                | IT Strategy: Disrupting Norms  |              |
| ISM 382                                | Advanced Computer Applications |              |
| ISM 383                                | Info Technology Security       |              |
| ISM 431                                | Database Systems II            |              |
| <b>Total Credit Hours</b>              |                                | <b>15</b>    |

## Learning Goals

The following Learning Goals have been developed by the faculty in the College of Business. These goals describe what we want all of our students to know and be able to accomplish upon graduation.

1. Students will be knowledgeable about the business disciplines.
2. Students will be effective communicators.
3. Students will be effective team members.
4. Students will be competent in the application of technology.
5. Students are able to understand and integrate knowledge across diverse disciplines, cultures, and context.
6. Students will demonstrate critical thinking skills to solve business problems.

### ISM 120 Bus Prob Solving w/ Comp Apps 3 Credit Hours

Full Course Title: Business Problem Solving with Computer Applications- This course introduces students to business problems, processes, and professional practices with an emphasis on structuring and solving business problems using computer applications. Drawing on problems from a range of business disciplines such as accounting, finance, marketing, and operations management, students will define, model, and solve business problems using spreadsheet and database software. They will practice critical thinking and business communication through oral and written presentation of problem analysis and results. Credit cannot be given for ISM 120 and any of ITM 120, MIS 120, CIS 121, 122, 123. (F,W,S)

**ISM 301 Bus Application Programming 3 Credit Hours**

This course is an introduction to basic concepts in computer programming with an emphasis on business applications. In the course, students will develop an understanding of fundamental programming logic and learn to use basic programming structures to solve business problems. Students are introduced to program development cycle and programming principles. The course covers principles of program design, programming structures, data types and structures, program testing, and debugging. Emphasis is placed on the implementation of programs with procedural structures, along with graphical user interfaces and event driven code. Upon completion, students should be able to design, code, test, and debug programs based on business requirement using a selected programming language. Credit cannot be given for both ISM 301, ITM 301 and MIS 301.

**ISM 302 Object-Oriented Programming 3 Credit Hours**

This course introduces the basic concepts of object-oriented programming with an emphasis on business applications. Students will develop an understanding of object-oriented modeling and learn to use object-oriented analysis and design techniques to solve simple business problems. Students are introduced to OO application development methodology and environment. The course covers principles of object-oriented programming, objects and classes, abstract data types, implementation of inheritance and polymorphism, database access, and graphic user interfaces. Upon completion, students should be able to design, code, test, and debug programs based on business requirements using a selected object-oriented programming language. Credit cannot be given for both ISM 302, ITM 302 and MIS 302.

**Prerequisite(s):** ITM 301 or MIS 301 or ISM 301

**Restriction(s):**

Can enroll if Level is Undergraduate

**ISM 303 iCreate: Mobile Apps 3 Credit Hours**

In this course, the technologies of mobile computing are introduced. Prior knowledge of programming logic and object-oriented concepts are applied in building mobile applications. Topics include mobile development environment, user interface elements of a mobile device, gesture, location awareness, and file operations. Creative thinking and entrepreneurship are introduced and fostered via creating a student-initiated mobile application from idea to sale.

**Prerequisite(s):** ITM 301 or ISM 301

**Restriction(s):**

Can enroll if Level is Undergraduate

**ISM 310 Info Systems in Management 3 Credit Hours**

This course provides an overview of information systems in the business world. It presents an organizational view of how to use information technology to create competitive firms, manage global organizations, and provide useful products and services to customers. Topics include hardware, software, databases, telecommunications systems, the strategic use of information systems, the development of information systems, and social and ethical issues involved with information systems. Credit cannot be given for ITM 310, ISM 310 and MIS 310.

**Restriction(s):**

Can enroll if Class is Sophomore or Junior or Senior

**ISM 311 Mgmt Information Sys Lab 1 Credit Hour**

ISM 311 is a lab component of ISM 310. Students will complete weekly laboratory assignments to reinforce the concepts of ISM 310 to use information technology to solve business problems. In addition, the use of several common applications (e.g., Word, Excel, Access, and PowerPoint) will also be covered at the beginning to advanced levels.

**Prerequisite(s):** ITM 310\* or ISM 310\*

**Restriction(s):**

Can enroll if Class is Sophomore or Junior or Senior

Can enroll if College is Business

**ISM 321 Database Systems I 3 Credit Hours**

This course examines the processes and tools used to design and implement database systems in business. The goal of this course is to provide adequate technical detail while emphasizing the organizational and implementation issues relevant to the management of computerized data in an organizational environment. A class project involving the design and implementation of a database using a microcomputer database management system is performed. Topics include concepts of database systems, conceptual database design, logical database design, physical database design, database implementation, and data retrieval. Credit cannot be given for ISM 321, ITM 321, MIS 321 and CIS 421.

**Prerequisite(s):** ITM 310 or MIS 310 or ACC 380 or ISM 310

**ISM 331 Info Systems Development 3 Credit Hours**

This course provides a foundation in systems analysis and design concepts, methodologies, techniques, and tools. Students will learn to analyze an organizational problem, define user requirements, design an information system, and plan an implementation. Methodologies covered will include the traditional life cycle approach as well as newer methodologies such as object-oriented approach, joint applications development (JAD), and prototyping. A semester-long project gives students the opportunity to apply these techniques to a business problem. This project will use technologies such as a computer-aided software engineering (CASE) tool, a database management system (DBMS), or a fourth-generation language. Credit cannot be given for ISM 331, ITM 331 and MIS 331.(F,W,S).

**Prerequisite(s):** (ITM 310 or ISM 310 or MIS 310 or ACC 380) and (ITM 321 or MIS 321 or ISM 321\*)

**Restriction(s):**

Can enroll if Level is Undergraduate

**ISM 347 Information Visualization 3 Credit Hours**

Full Course Title: Information Visualization: Business Insight via Storytelling Information visualization has been used greatly in various disciplines including media, business, and engineering. It is valuable in helping people analyze and understand information to lead to better solutions and decisions. This course will introduce students to the field of information visualization via a hands-on approach. Readings and lectures will provide an overview of the field. Students will learn visualization design and evaluation principles and learn how to acquire, parse, and analyze large datasets. Students will also learn tools and techniques for visualizing multivariate, temporal, text-based, geospatial, hierarchical, and network/graph-based data. (F,W,S)

**Prerequisite(s):** ITM 310 or ISM 310 or MIS 310 or ACC 380

**ISM 351 Networking and Collab Comp 3 Credit Hours**

This course provides an introduction to data communication, networks, distributed processing and collaborative computing. The course will study the technical and management aspects of computing networks and distributed systems supporting a wide range of organizational functions from organizational process to managerial strategic decision making, from personal to group to organizational computing. The applications of telecommunications in the work settings and management issues of telecommunications will be addressed. The social and organizational implications of the telecommunications technology are also examined. Credit cannot be given for ISM 351, ITM 351 and MIS 351.

**Prerequisite(s):** ITM 310 or ISM 310 or MIS 310 or ACC 380

**ISM 371 IT Strategy: Disrupting Norms 3 Credit Hours**

Full Course Title: IT Strategy: Disrupting Industry Norms, Practices, and Structures: Businesses are in the early stages of an information revolution whereby IT is transforming industries, generating whole new human communities, creating new markets, and redefining basic business models. These disruptions, driven by IT, are becoming more and more common and have resulted in the emergence of new regulations, behaviors, and norms. When IT disrupts an industry, the fundamentals of the business models change in ways which are not immediately obvious. The emphasis of this course is on managerial and industry issues with a focus on the transformations of business models over the last ten years. Throughout this course you will be exposed to how these changes in business models are put into practice through specific features in the technology. Topics include platform competition, network effects, pricing models for digital goods, the sharing economy, the wisdom of crowds, the long-tail effect, the social network perspective, and technology adoption. (YR).

**Prerequisite(s):** ISM 310 or ITM 310 or MIS 310 or ACC 380

**ISM 381 Info Systems Project Mgmt 3 Credit Hours**

This course examines the management of information system projects in business organizations as well as human and organizational reactions to the changes brought about by new information systems. Topics include project planning, project controls, project reporting, information system projects and organizational changes, factors affecting project success and failure, and project management software.

**Prerequisite(s):** ITM 310 or ISM 310 or MIS 310 or ACC 380

**ISM 382 Advanced Computer Applications 3 Credit Hours**

This is an advanced course in computer applications, decision modeling, and business problem-solving. Topics will include Visual Basic for Applications (VBA), pivot tables, user interfaces, and application manipulation techniques for both spreadsheet and database applications. Complex formulae will be introduced to enable students to create sophisticated models for solving nested and complex business problems. Credit cannot be given for ITM 382, ISM 382 and MIS 382.

**Prerequisite(s):** ITM 120 or ISM 120 or MIS 120 or CIS 112 or ITM 311 or ACC 381 or CIS 123

**Restriction(s):**

Can enroll if Level is Undergraduate

**ISM 383 Info Technology Security 3 Credit Hours**

This course provides a foundation of IT security, methodologies, techniques, and tools. This course will cover both the managerial and technical sides of IT security. Topics include: security costs and benefits, information assets, security threats, network attacks, security planning, incident response, disaster recovery, and training. Hands-on lab sessions, interactive lectures, discussions, and guest speakers will be used throughout the course.

**Prerequisite(s):** ITM 310 or ISM 310 or MIS 310 or ACC 380

**ISM 387 Digital Security 3 Credit Hours**

Full Title: Digital Security: Threat Prevention and Management The ability to secure information within a modern enterprise-large or small-is a growing challenge. Threats to information security are global, persistent, and increasingly sophisticated. This course provides the practices and methods currently used by information security professionals to manage and secure an information environment. Topics include security strategy and policies, security operation center (SOC), network security, physical security, malware countermeasures, operational systems security, risk analysis and incident response practices. (F,W,S)

**Prerequisite(s):** ITM 383 or ISM 383

**ISM 431 Database Systems II 3 Credit Hours**

This capstone course will provide an opportunity for students to work as a member of a project team on a complex, real-world information systems project. The course examines the processes and tools used to develop, implement and administer database systems in business. A class project involving the development of a database using a client/server database management system is performed. Project management methodologies and tools used to manage complex information systems projects are also applied in the course.

**Prerequisite(s):** ITM 321 or ISM 321 or MIS 321

**ISM 491 Seminar: Manag Info Systems 3 Credit Hours**

To provide students with an opportunity for intensive study in current areas related to the research activities and/or professional activities of faculty members. Permission of College of Business.

**Restriction(s):**

Can enroll if Class is Senior

**ISM 492 Research: Manag Info Systems 3 Credit Hours**

To provide the advanced student with the opportunity to undertake a research project under the supervision of a faculty member. At least two weeks prior to registration in the term when such a course is to be elected, an interested student must submit to the dean of the school a written request for permission to elect a research course, on a form available in the school office. The request will include a description of the proposed research project. The dean will review the proposal with faculty members to ascertain availability of relevant faculty supervision and to establish appropriate credit. Permission of College of Business.

**Restriction(s):**

Can enroll if Class is Senior

\*An asterisk denotes that a course may be taken concurrently.

Frequency of Offering

The following abbreviations are used to denote the frequency of offering: (F) fall term; (W) winter term; (S) summer term; (F, W) fall and winter terms; (YR) once a year; (AY) alternating years; (OC) offered occasionally