MANAGEMENT INFORMATION SYSTEMS

Management Information Systems (MIS) involves the strategic analysis and use of information systems and technologies to support organizational problem-solving and decision-making. 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 with both technical and managerial coursework.

Undergraduate Major in Management Information Systems

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

The Department of Information Systems and Business Analytics 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 (B.S.) degree, and 18 additional credits in the major.

The instructional objective of the Management Information Systems major is to prepare 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.

For more information on the undergraduate major in Management Information Systems, please visit: https://www.ivybusiness.iastate.edu/academics/undergraduate-programs/management-information-systems/. (https://www.ivybusiness.iastate.edu/academics/undergraduate-programs/management-information-systems/)

Student Learning Outcomes

Upon graduation, undergraduate students majoring in Management Information Systems will:

1. Be effective communicators.
2. Be effective collaborators.
3. Be problem solvers.
4. Understand business concepts.
5. Recognize ethical and legal responsibilities to organizations.

Curriculum:

In addition to the basic business degree requirements (https://catalog.iastate.edu/collegeofbusiness/#curriculuminbusinesstext) the Management Information Systems 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.

Required Courses (12 credits):

MIS 3070	Intermediate Business Programming	3
MIS 3100	Information Systems Analysis	3
MIS 3200	Database Management Systems	3
MIS 3400	Project Management	3

Elective Courses (6 credits):

Select 6 credits of MIS department courses from the list below:		
MIS 3116X	Data Visualization and Storytelling	3
MIS 3150	Business Data Streams and Issues	3
MIS 3670	Consultative Problem Solving	3
MIS 4001X	Technology Entrepreneurship	3
MIS 4030	Healthcare Information Systems	3
MIS 4070	Advanced Business Programming	3
MIS 4100	Blockchain and Cryptocurrency	3
MIS 4350	Cybersecurity in Business	3
MIS 4360	Introduction to Business Analytics #	3
MIS 4400	Supply Chain Information Systems	3
MIS 4420X	Generative AI in Business Decision-Making	3
MIS 4450	Enterprise Cybersecurity	3
MIS 4460	Advanced Business Analytics #	3
MIS 4470	Information Systems Development	3
MIS 4500	Enterprise Resource Planning Systems in Supply Chain	3
MIS 4680	Analytics for Marketing Strategies	3
MIS 4950	Executive Analysis and Presentation *	3

STAT 3226 Intermediate Business Statistics is a prerequisite for these courses.

* Only 3 credits of MIS 4950 may count as a Management Information Systems major choice elective.

NOTE: Management Information Systems majors must take MIS 2070 Fundamentals of Programming for Business and Analytics as part of the supporting courses.

The X designation after a course number indicates this is an experimental course offered by the Department. Although in an experimental phase, these courses are open for registration just the same as permanent

courses listed in the course catalog and count as elective choices in the major.

Students are limited to three business majors/degrees/certificates/minors within the Ivy College of Business. This limit is on business majors/degrees/certificates/minors only and does not apply to multiple majors/degrees/certificates/minors taken outside the Ivy College of Business.

Management Information Systems, B.S.

Any four year plans shared in the catalog are samples of a potential university experience.

Freshman

Fall	Credits	Spring	Credits
BUSAD 1020 or 1030	1	ECON 1020	3
ECON 1010	3	STAT 2026	3
COMS 1130	3	PHIL 2300	3
ENGL 1500	3	ACCT 2840	3
MATH 1500	3	Global/International Perspective[@]	3
LIB 1600	1	BUSAD 2030	1
	14		**16**

Sophomore

Fall	Credits	Spring	Credits
ACCT 2850	3	MIS 3070	3
MIS 3010	3	SPCM 3120	3
ENGL 2500	3	Natural Science	3
MIS 2070	3	HUM/SOC SCI	3
MATH 1510	3	General Elective	3
	15		**15**

Junior

Fall	Credits	Spring	Credits
MIS 3100	3	MIS 3200	3
Business Core Courses	6	MIS 3400	3
ACCT 2150	3	Business Core Courses	6
U.S. Cultures and Communities[#]	3	ENGL 3020	3
	15		**15**

Senior

Fall	Credits	Spring	Credits
MIS Elective	3	MIS Elective	3
HUM/SOC SCI	3	HUM/SOC SCI	3
Global/International Perspective[@]	3	MGMT 4780[*]	3
Business Core Courses	6	General Electives	6
General Electives	2		
	17		**15**

Total Credits: 122

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

\# U.S. Cultures and Communities courses may be used to satisfy HUM/SOC SCI.

* Must have credit or enrollment in all core courses listed above, except for MGMT 3720, plus senior standing, in order to enroll in MGMT 4780.

Graduation Requirements:

1. Grade of "C" or higher in at least 30 credits of Core and Major courses.

2. 42 credits of 3000+ level courses from a four-year institution.

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 (exceptions for study abroad and internship may be requested).

5. 122 Credits minimum and a Cumulative GPA of at least 2.00 with no quality point deficiencies.

6. Grade of C or better in ENGL 2500 required, and also in one other required ENGL course.

7. All 3000-level and higher business credits must be earned at a four-year college.

8. Multiple business **majors** must have at least 15 distinct credits in each of the major requirements; when applicable, one course can be shared between business majors; see your advisor regarding multiple business **degree requirements**.

Undergraduate Minor in Management Information Systems

The Department of Information Systems and Business Analytics 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, including at least 6 credits in courses numbered 3000 or above taken at Iowa State University with a grade of C or higher. The minor must include at least 3 credits that are not used to meet any other department, college, or university requirement. Students with declared majors have priority over students with declared minors in courses with space constraints.

Required Course (3 credits):

MIS 3010	Management Information Systems	3

Elective Courses (12 credits):
Select twelve credit hours from 3000 or 4000 level MIS courses *

* Only 3 credits of MIS 4950 Executive Analysis and Presentation may count as a MIS minor choice elective.

Students are limited to three business majors/degrees/certificates/minors within the Ivy College of Business. This limit is on business majors/degrees/certificates/minors only and does not apply to multiple majors/degrees/certificates/minors taken outside the Ivy College of Business.

For more information on the undergraduate minor in Management Information Systems, please visit: https://www.ivybusiness.iastate.edu/academics/undergraduate-programs/minors-and-certificates/. (https://www.ivybusiness.iastate.edu/academics/undergraduate-programs/minors-and-certificates/)

The Department of Information Systems and Business Analytics participates in the Applied AI Minor that is available to all undergraduate students at Iowa State University by providing electives in Business Analytics.

Concurrent Degrees

The Department of Information Systems and Business Analytics offers four concurrent degree programs that allow qualified students to be admitted to the following master's programs while completing their undergraduate degree. Students can double count up to 6 credits of coursework between the degrees, allowing them to complete both a bachelor's and a master's degree in an accelerated pathway. The concurrent degree programs offered include:

- B.S. Management Information Systems (MIS) and Master of Science in Information Systems (MSIS)
- B.S. Management Information Systems (MIS) and Master of Business Analytics (MBAN)
- B.S. Business Analytics (BUAN) and Master of Science in Information Systems (MSIS)
- B.S. Software Engineering (S E) and Master of Science in Information Systems (MSIS)

For more information on any of the concurrent programs listed above, please visit: https://www.ivybusiness.iastate.edu/academics/graduate-programs/concurrent-degree-options/. (https://www.ivybusiness.iastate.edu/academics/graduate-programs/concurrent-degree-options/)

Graduate Programs

The MSIS is a 30-credit (minimum) curriculum built around three interrelated areas: business foundations, information systems (IS) core, and electives. The program prepares students to bridge the gap between business needs and IT solutions. Graduates learn how to analyze organizational problems, design and implement IT-enabled solutions, and manage digital innovation. Courses explore topics such as blockchain, big data, healthcare analytics, cybersecurity, project management, and artificial intelligence in business decision-making. Graduates leave the program with the IT expertise and managerial perspective to lead projects, drive digital transformation, and create business value in today's data-driven economy.

Master of Science Information Systems (MSIS)

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.

Student Learning Outcomes

Upon graduation, MSIS students will:

1. Work effectively in teams.
2. Be critical thinkers in the field of information systems.
3. Develop an awareness of the ethical dimensions and consequences of business decisions.
4. Have strong written communication skills.
5. Have strong oral communication skills.

For more information about the MSIS program, please visit: https://www.ivybusiness.iastate.edu/academics/graduate-programs/master-of-science-in-information-systems/. (https://www.ivybusiness.iastate.edu/academics/graduate-programs/master-of-science-in-information-systems/)

Masters in Healthcare Analytics and Operations (MHAO)

Graduates of the Master's in Healthcare Analytics and Operations (MHAO) program will leverage data and advanced analytical models to evaluate operations and supply chains, generating actionable insights that enhance outcomes in the healthcare sector. This program emphasizes the use of both historical and real-time data to identify trends and optimize processes, ultimately benefiting patients, healthcare professionals, and supply chain partners alike. With a requirement of 30 credit hours, the program is delivered entirely online, making it an excellent choice for full-time professionals in the healthcare industry. The MHAO program curriculum aligns with the competencies required for the Certified Health Data Analyst (CHDA) exam.

Student Learning Outcomes

Upon graduation, MHAO students will:

1. Demonstrate understanding of healthcare operations, including process and performance improvement
2. Use data and analytical models to analyze complex healthcare issues
3. Communicate effectively
4. Lead and collaborate within diverse healthcare teams.
5. Integrate legal and regulatory considerations into patient-centered decision-making.

For more information about the Master of Healthcare Analytics and Operations program, please visit: https://www.ivybusiness.iastate.edu/academics/graduate-programs/master-of-healthcare-analytics-and-operations/. (https://www.ivybusiness.iastate.edu/academics/graduate-programs/master-of-healthcare-analytics-and-operations/)

Double Graduate Degree

The Department of Information Systems and Business Analytics participates in one double degree program at the graduate level. Students can simultaneously pursue a double degree in Master of Business Administration (MBA) and Master of Healthcare Analytics and Operations (MHAO). The Double Degree plan allows students to share credits between the degrees. See the Director of Graduate Education for more details on sharing credits.

For more information on the double degree in Master of Business Administration (MBA) and Master of Healthcare Analytics and Operations (MHAO), please visit: https://www.ivybusiness.iastate.edu/academics/graduate-programs/double-degree-options/. (https://www.ivybusiness.iastate.edu/academics/graduate-programs/double-degree-options/)

Master of Business Administration (MBA)

The MBA program 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. Within the MBA program, students may obtain a specialization in information systems or healthcare analytics and operations.

Student Learning Outcomes

Upon graduation, MBA students will:

1. Demonstrate effective communication skills.
2. Effectively lead and work in diverse teams.
3. Critically solve business problems.
4. Integrate ethical and global perspectives in decision making.

For more information about the MBA program with a specialization in Information Systems or Healthcare Analytics and Operations, please visit: https://www.ivybusiness.iastate.edu/academics/graduate-programs/ivy-mba/full-time-mba/.

PhD in Business and Technology

The PhD in Business and Technology with an Information Systems and Business Analytics (ISBA) specialization is a 74-credit (minimum) curriculum which involves the completion of a dissertation that addresses content in four interrelated areas of knowledge—core, specialization, minor, and research methods. Information systems form the digital foundation of modern enterprises; business analytics involves the strategic analysis of data to extract meaningful insights. The ISBA specialization focuses on issues related to the development, management, use, and impact of digital technology and business analytics. Students in the ISBA specialization will examine a wide variety of topics such as human computer interaction, artificial intelligence, machine learning, information security and privacy, healthcare analytics, digital platforms, and others. Students will gain a solid research foundation and learn the skills needed to conduct impactful research on how to leverage technology and analytics to achieve business success.

Student Learning Outcomes

Upon graduation, PhD students will be able to:

1. Understand and advance knowledge.
2. Create knowledge through original research.
3. Teach effectively in an institution of higher education.

For more information about the PhD program with a specialization in ISBA, please visit: https://www.ivybusiness.iastate.edu/academics/phd-program/information-systems-and-business-analytics/. (https://www.ivybusiness.iastate.edu/academics/phd-program/information-systems-and-business-analytics/)

Graduate Certificates

Enterprise Cybersecurity Management

The graduate certificate in enterprise cybersecurity management will equip business professionals with basic concepts and techniques in cybersecurity and the management of information assets, including understanding cyber threat and choosing appropriate protections, enterprise cyber risk management, budgeting for cybersecurity, policies, procedures, human relations issues, and compliance and legal issues present in the modern organization.

The certificate is for working professionals as well as students enrolled in graduate programs. The certificate is available on campus in Ames and at Capital Square in Des Moines.

For more information about the graduate certificate in Enterprise Cybersecurity Management, please visit: https://www.ivybusiness.iastate.edu/academics/graduate-programs/graduate-certificates/enterprise-cybersecurity-management/. (https://

www.ivybusiness.iastate.edu/academics/graduate-programs/graduate-certificates/enterprise-cybersecurity-management/)

Business Analytics

The graduate certificate in business analytics will address the challenges of dealing with issues of "big data" and its analysis to extract actionable insights, equips business professionals with the basic analytic concepts and techniques necessary in various areas of business such as marketing, supply chain, operations, forensics, and risk management. Students will have a foundation in data management, business analytics, modeling, and communicating through data visualization.

The certificate is for working professionals as well as students enrolled in graduate programs who are employed or seeking a career as business analysts, analytic systems designers, and data scientists to help improve business performance. The certificate is available online, on campus in Ames and at Capital Square in Des Moines.

For more information about the graduate certificate in business analytics, please visit: https://www.ivybusiness.iastate.edu/academics/graduate-programs/graduate-certificates/business-analytics/. (https://www.ivybusiness.iastate.edu/academics/graduate-programs/graduate-certificates/business-analytics/)

Healthcare Analytics

The Healthcare Analytics Graduate Certificate equips healthcare professionals with practical data skills to drive informed decisions. This 12-credit online program, ideal for those in or entering healthcare analytics, business intelligence, or health technology, offers focused training without a full master's degree commitment. Students gain hands-on experience with industry-standard tools, learning to collect, analyze, and communicate healthcare data. Core courses cover analytics, data privacy, and compliance, while electives explore machine learning, operations, and data management. Graduates are prepared to make an immediate impact in performance improvement, financial analysis, population health, and quality and safety reporting.

For more information about the graduate certificate in healthcare analytics, please visit: https://www.ivybusiness.iastate.edu/academics/graduate-programs/graduate-certificates/.