MANAGEMENT INFORMATION SYSTEMS (MIS)

MIS 175. Introduction to Algorithms and Program Design. 4 Credit Hours.
This course introduces students to prgamming with an emphasis on computational problem-solving. Topics include program design and testing strategies, programming language syntax and semantics, scalar data types and an introduction to data structures, control structures, iteration, recursion, file input/output exceptions as well as introduction to algrithm analysis. Students will use a high-level programming language to develop programs and reinforce their understanding of topics.
Cross-listed Courses: CSC 175

MIS 175L. Lab. 0 Credit Hour.
Cross-listed Courses: CSC 175L

MIS 176. Object Oriented Programming. 3 Credit Hours.
This course continues the study of program development introduced in CSC 175. Topics include intermediate program design, object oriented programming (objects, types, inheritance, and polymorphism), basic data structures such as arrays and strings, and event-driven programming using a graphical user interface (GUI). Students will use a high-level programming language to complete several intermediate sized programming projects to reinforce concepts. Student may not take both CSC 170 and CSC 176.
Prerequisites: CSC 155, CSC 165, or CSC 175 or permission of the program director.

Cross-listed Courses: CSC 170, MIS 325

MIS 201. Introduction to Management Info Systems. 3 Credit Hours.
This course provides an overview of the concepts and methodologies of information systems. The course focuses on the idea of information systems support for competitive decision-making, thus blending technical with managerial topics. Students will develop familiarity with the principles of information systems as well as hands-on experience with a variety of information systems tools and techniques.

MIS 325. Introduction to Java Programming Programming. 4 Credit Hours.
This course will introduce you to programming and object oriented programming using Java. General programming topics include program design, testing strategies, and control structures such as conditionals, iteration. Object oriented topics include creating and using classes, inheritance and interfaces. Students will also learn about basic data structures such as arrays and strings. Students will solve programming problems in weekly lab sessions. Graduate students in the course will also be introduced to event-driven programming using a graphical user interface (GUI), recursion, and 2-dimensional arrays.
Cross-listed Courses: CSC 170

MIS 326. COBOL Programming. 3 Credit Hours.
This course is a study of the COBOL programming language, with application of its features for table handling, sorting, sequential and random access file handling and modular programming.
Cross-listed Courses: CSC 155

MIS 340. Data Science. 3 Credit Hours.
This course will provide you the knowledge and techniques to approach phenomena analytically. Specially, you will learn the role and process of the data science lifecycle in understanding and gaining insight about phenomena, including how to ask the appropriate questions, identify the appropriate data and information needed, use the appropriate tools to analyze a large volume of data, evaluate the findings effectively with parameters, find the appropriate answers, and present the answers and compellingly. In the business context such knowledge can enable organizations to make quality decisions and develop important business strategies that can enhance organizational performance and that can contribute to significant financial gains. You will proficiently acquire such knowledge and techniques through class discussion, lectures, readings, as well as hand-on exercises. Prerequisite(s): STA 202 or MTH 112.
Cross-listed Courses: ANL 435, CTS 340

MIS 345. Introduction to Human Computer Interaction and Design. 3 Credit Hours.
This course provides an introduction to the field of human-computer interaction (HCI), an interdisciplinary field that links computer and industrial design, software engineering, the organizational sciences and cognitive psychology. Students will examine theories of design, technology and interfaces in order to enhance and extend human capabilities. The course will cover foundational theories, principles and guidelines that inform design, as well as how these theories, principles and guidelines are applied in laboratory settings, in organizations and in daily life. Assignments and course projects provide hands-on experiential learning with course topics, and guest speakers and laboratory and industrial tours, when appropriate, will supplement the class lectures and activities.
Prerequisite: MIS 201 ore permission of department chair.

MIS 350. Accounting Information Systems. 3 Credit Hours.
This course will examine the design, control and operation of accounting information systems with a strong emphasis on integration. The course will present a thorough introduction to basic information systems theory, provide a working knowledge of systems analysis and design techniques, databases and enterprise systems. Understanding and appreciation of accounting information systems is critical to successfully managing, auditing and developing systems to support today's evolving business environment. This course offers a focused look at accounting information systems as part of enterprise resource planning systems, with a focus on SAP and other comparable enterprise systems to demonstrate concepts.
Prerequisite(s): Grade of C or above in MIS 201, and in either ACT 203 and ACT 204, or in ACT 201 and ACT 202.
Cross-listed Courses: ACT 350

MIS 375. Applied Systems Analysis. 3 Credit Hours.
This course introduces the nature and techniques of information systems analysis, design and implementation. The course topics include requirements definition, analysis and design of information systems; system implementation and evaluation; object-oriented analysis and design; and current trends in systems analysis and design. Students demonstrate their knowledge by completing a systems analysis and design project.
Prerequisite: MIS 201 or permission of the instructor.

MIS 385. Programming in Visual Basic With Visual Basic. 3 Credit Hours.
This class covers the basics of structured programming using Visual Basic to develop decision support systems or management science applications. The theory and practice of structured programming, logic, systems development are covered in a series of iterative hands-on assignments, which are designed based on practical decision support systems or management science applications. Students can expect to learn how to create and program advanced Excel applications or other equivalent applications. A term project involving the development and documentation of a Visual basic program is required.
Cross-listed Courses: CSC 165

MIS 399. Independent Study in Information Systems. 1-6 Credit Hours.
A student who wishes to pursue an independent study project for academic credit must submit, prior to registration, a proposed plan of study that includes the topic to be studied and the goal to be achieved, the methodology to be followed, schedule of supervision, end product, evaluation procedure and the number of credits sought. The proposal must be approved by the supervising faculty member, the program director and Dean of the Madden School. The proposal will be kept on file in the office of the Dean of the Madden School. The hours and credit are to be determined by the student and the program director.

MIS 411. Crowds, Social Media & Digital Collaboration. 3 Credit Hours.
Over the past years, crowds, social media, and digital collaborations have emerged as important topics in the IS field. Social media and other social information systems not only support communications and collaborations among the general crowd but also harness collective intelligence for innovation. This course covers the basic concepts and theories of social media, crowdsourcing, remixing, and sharing economy. Students will also learn analytics and applications around these trending topics.
Prerequisite: MIS 201.

Cross-listed Courses: CTS 411

MIS 415. Business Intelligence. 3 Credit Hours.
This course provides an introduction to Business Intelligence, including the processes, methodologies, infrastructure, and current practices used to transform business data into useful information and support business decision-making. Business Intelligence requires foundation knowledge in data storage and retrieval, thus this course will review logical data models for both database management systems and data warehouses. Students will learn to extract and manipulate data from these systems and assess security-related issues. Data mining, visualization, and statisical analysis along with reporting options such as management dashboards and balanced scorecards will be covered. Technologies utilized in the course included SAP Business Warehouse, SAP Business Objects, Crystal Reports, and RapidMiner.
Prerequisite: MIS 201 or permission of the instructor.

Cross-listed Courses: MKT 415, ANL 415, CTS 415

MIS 420. Marketing Analytics. 3 Credit Hours.
With the increased use of big data creating a paradigm shift in how marketers make decisions, the need to be able to extract meaningful information from this voluminous amount of data to make smarter decisions is becoming more important than ever. The course will provide students with the tools to develop a systematic, analytical approach to marketing decision making. The course aims at preparing students to (1)understand the value of competitive advantages leveraged by analytics; (2) understand the existence, advantages and limitations of different analytical approaches; and (3) to apply, interpret the input, and communicate the output from these tools and models, and apply them to help make fact-based decisions. The course takes on a hands-on experiential approach with real-world databases to facilitate the comprehension of the different analytical approaches discussed in class.
Prerequisites: MKT 301, STA 202.

Cross-listed Courses: MKT 420, ANL 425

MIS 425. Distributed Enterprise Systems. 3 Credit Hours.
This course serves as an introduction to the cloud computing environment, discussing both fundamental concepts of how and why cloud systems work, as well as cloud technologies that manifest these concepts, such as Amazon AWS, Microsoft, Azure, and Open Stack. Students will learn about virtualizations, data parallelisms, security and privacy, cloud storage mechanisms, and cloud design architectures in the context of distributed systems. This course will be taught in a lab lecture style utilizing Amazon Web Services (AWS) as a learning platform. Recommended predecessor courses: MIS-478, MIS-455.
Prerequisite: MIS-201, or permission of the instructor.

MIS 430. Human Resource Information Systems. 3 Credit Hours.
This course will offer an understanding of how human resource information systems are applied in organizations to support organizational strategy, improve efficiency and flexibility, increase productivity and performance, enhance retention and ensure compliance with employment law. The focus will be on merging information systems with a strategic human resource perspective. This course provides students with the knowledge, skills and abilities to identify, assess, develop and maintain an effective HR system. Students will develop a thorough understanding of the plan, design/acquisition, implementation and applications of a human resource information system (HRIS).Prerequisite(s): MIS 201 and HRM 301 or permission of the instructor.
Cross-listed Courses: HRM 430

MIS 435. Introduction to Government Systems. 3 Credit Hours.
This course focuses on introductory government systems concepts, processes and functions, utilizing the Federal Acquisition Regulations (FAR). Students will examine FAR regulations, processes and nomenclature, utilizing existing and proposed regulations and industry case studies, and appropriate support technology. Guest speakers and field research provide students with access and information from industry and academia.
Prerequisites: ACT 202 or ACT 204.

MIS 440. Machine Learning for Business Applications. 3 Credit Hours.
Machine learning, a subset of artificial intelligence, gives computers the capability to learn from data, identify patterns, and make decisions without being explicitly programmed. This course will cover different supervised and unsupervised machine learning algorithms, and their applications to structured and unstructured data including financial, marketing, health care, social media, entertainment, and socio-economic data. Four main problem domains will be covered (i) regression, (ii) classification, (iii) clustering, and (iv) association. Using machine learning to transform data into business decisions and communication of the results and insights from the analysis will be emphasized throughout the course. This course does not assume any prior exposure to machine learning theory or practice. Prerequisite(s): ANL 301 and STA 202, or permission of department chair.
Cross-listed Courses: ANL 440

MIS 441. Artificial Intelligence for Business. 3 Credit Hours.
As artificial intelligence (AI) has generated revolutionary impacts on daily life and all sectors of business, it becomes critically important to learn to develop and work with AI tools. This course introduced the nature and techniques of artificial intelligence in business applications. It focuses on what has contributed to the adoption of AI by business so rapidly and profoundly: automating business tasks and processes and performing analytics to generate insights over business performance. Students will learn the knowledge of the AI project development life cycle as well and hands-on skills to utilize AI tools. In addition, the course explores such important topics as human working with AI, and responsible and ethical AI. At the end of the semester, students should be able to understand, participate in, lead and evaluate an AI project and technically competent in impactful AI tools.
Prerequisite: MIS 201 or department chair.

MIS 445. Mobile Applications and Business Strategies. 3 Credit Hours.
The course explores the important challenges and connect with their stakeholders. Students will learn the technical, managerial and marketing aspects of mobile applications. Technically, they will learn the development process and technical infrastructure of mobile applications. Mangerially, students will learn how to develop business strategies to exploit mobile applications for the advancing and repositioning of organizations. For marketing, students will learn to market the newly developed mobile applications and at the same time to use mobile applications to market and promote the organizations and their products or services.
Prerequisites: MIS 201 or permission of instructor.

Cross-listed Courses: MKT 445

MIS 446. Deep Learning. 3 Credit Hours.
Deep learning is one class of machine learning algorithms. It is one of the fundamental topics of artificial intelligence. This course aims to provide students with the basics of deep learning so that students can apply it to various AI tasks. In this course, we will start with simple machine learning concepts and models, then we will move on to deep neural networks and their applications.
Prerequisites: MTH 110.

Corequisites: ANL 415, MKT 415, or MIS 415; or MIS 201 and ANL 435 or MIS 340.

MIS 450. Health Information Systems. 3 Credit Hours.
This course provides students with the knowledge of the design, use, and evaluation issues of health informatics applications. The topics include: (1) health informatics as a discipline; (2)career options for health informatics; (3)major health applications and commercial vendors; (4) strategic information systems planning; and (5) new opportunities and emerging trends.
Prerequisites: MIS 201 or permission of instructor.

Cross-listed Courses: NSG 387, NSG 697, MIS 710

MIS 455. Managing the Technological Enterprise. 3 Credit Hours.
This course covers the requirements, management and performance of enterprises engaged in the use of technology. Requirements determination, analysis, design, and cost management activities for technological enterprises are covered; a focus on the management of life cycle costs is emphasized. The management of third-party organizations, outsourcing and project management activities are also covered. The legal, environmental, and ethical issues associated with the management and performance of technological enterprises are important components of this course. Guest speakers and case studies from local, national, and international technological enterprises, agencies and regulatory organizations are employed in this course.
Prerequisites: MIS 201 or permission of department chair/program director.

Cross-listed Courses: RMI 455

MIS 460. Managing Systems Projects. 3 Credit Hours.
This course focuses on introductory project management processes, technology, and tools, utilizing the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK) and the Software Engineering Institute's (SEI's) Capability Maturity Model Integration (CMMI) processes and nomenclature. Students examine the processes and theory of project management as well as industry case studies and will utilize project management software in support of their management activities. Guest speakers and field research provide students with access and information from industry and academia. Students are engaged in a semester-long project. Initially, they are required to identify the project scope and team charter for their project; subsequent assignments require them to prepare a business case, work breakdown structure, cost estimate, and final project documentation for their project.
Prerequisite(s): MIS 201 or permission of department chair/program director.
Cross-listed Courses: CSC 460, MGT 460, RMI 462

MIS 471. Information Systems Research Methods. 3 Credit Hours.
Information systems, composed of technology, people, information, systems, organizations, policies, and society, contain many complex and interdependent elements. The large-scale systems within which many information systems reside, including organizations, technology systems, communities, nations, and even human biological systems, can be similarly complex, with interdependent elements. Information systems researches study technology, people, information, organizations and systems in order to understand information systems, and the interactions between and the impacts of those elements and information systems, on individuals, groups, organizations, and other systems. Research design is the process of formulating a research plan that addresses research questions of interest. A sound research design ensures that the data and evidence obtained assists in effectively addressing the research questions under study. Key to good research design are research methods, approaches and techniques used to carry our research, which are facilitated by the collection of meaningful and useful data and evidence, and by analysis, assessment and interpretation of that data and evidence. This course provides an overview of the fundamentals of research design and research methods, including research question and hypothesis formulation; data and evidence collection and analysis; and the challenges of research design and methods. Students in this seminar course work closely with a Le Moyne factuly mentor while conducting research in Information Systems, either on campus at Le Moyne or in the field. McDevitt Information Systems Research Scholars who have gone through a year-long faculty research mentoring process in previous years and have prepared and published their own research also seve as mentors to students in this class. Students and their mentors participate in bi-monthly research seminars led by the Le Moyne faculty mentor, at which they present their research, collaborate on their findings and discuss their progress. Open to students eligible for Departmental Honors, Honors in Information Systems, and Independent Study Research. Junior or Senior standing; or permission of instructor. Prerequisite(s): MIS 201.

MIS 478. Financial Telecomm & Cybersecurity. 3 Credit Hours.
This course provides an overview of the concepts and principles of telecommunications systems and networks, blending technical with managerial topics. Students will focus on the challenges inherent in securing financial telecommunications networks, particularly the challenges of insider threats. Students will local area networks, wide area networks, wireless networks, value-added networks, as well as other networks. Students will complete a series of network installation and test projects, and will analyze network design cases throughout the semester. Guest speakers from industry and case studies from on-going research will provide a real-world contect for the topics discussed in class. Students may sit for network certification following completion of the course.
Prerequisites: MIS 201, or permission of the instructor.

MIS 480. Database Management Systems. 3 Credit Hours.
This course provides an overview of the concepts and principles of database management systems, blending technical with managerial topics. Students will study the principles of database structures, the database development process, entity-relationship and object-oriented database models, logical and physical database designs, SQL, as well as distributed and object-oriented databases. Students will also examine data warehouses, as well as the challenges of global electronic data management, electronic commerce and ethical issues associated with the increasing integration and complexity of large-scale data sets. Students will complete a database design project during the semester. Prerequisites: MIS 201 or permission of the instructor.

Cross-listed Courses: CSC 480

MIS 490. Information Systems Internship. 1-6 Credit Hours.
Participation in a real-world learning experience is provided in internship opportunities. The intern reports as required to a faculty member, and both student and faculty member assesses the internship as it relates to the student's academic program and desired organizational experiences. Prerequisite: permission of the program director.

MIS 495. Special Topic in Information Systems Research Methods. 3 Credit Hours.
Information systems, composed of technology, people, information, systems, organizations, policies, and society, contain many complex and interdependent elements. The large-scale systems within which many information systems reside, including organizations, technology systems, communitites, nations, and even human biological systems, can be similarly complex with interdependent elements. Information systems researchers study technology, people, information, organizations and systems in order to understand information systems, and the interactions between and the impacts of those elements and information systems, on individuals, groups, organizations, and other systems.
Prerequisite: MIS 201; Junior or Senior standing;or permission of instructor.

MIS 499. Independ Study in Info Systems (Honors). 3 Credit Hours.
This course is intended for honors students and is required for the honors degree in Information Systems. The student conducts an independent research project under the guidance of at least one faculty member in the program. The Honors Committee evaluates a written and oral presentation of the research project. This course may only be taken by permission of the program director.

MIS 501. Management Information Systems. 3 Credit Hours.
An overview of management information systems (MIS) and their structure is provided through case analysis. Topics covered include the underlying concept of information, decision-making, management and how organizations affect the design of information systems. The impact of information systems on human behavior, organizations and societies is analyzed. Information resources management models underlie the technical and management focus of the course. Students are expected to complete group and individual projects using commercially available spreadsheet, database and systems analysis software packages.

MIS 525. Introduction to Java Programming Programming. 3 Credit Hours.
This course will introduce you to programming and object oriented programming using Java. General programming topics include program design, testing strategies, and control structures such as conditionals, iteration. Object oriented topics include creating and using classes, inheritance and interfaces. Students will also learn about basic data structures such as arrays and strings. Students will solve programming problems in weekly lab sessions. Graduate students in the course will also be introduced to event-driven programming using a graphical user interface (GUI), recursion, and 2-dimensional arrays.

MIS 535. Intro to Government Systems. 3 Credit Hours.
This course focuses on introductory government systems concepts, processes and functions, utilizing the Federal Acquisition Regulations (FAR). Students will examine FAR regulations, processes and nmenclature, utilizing existing and proposed regulations and industry case studies, and appropriate support technology. Guest speakers and field research provide students with access and information from industy and academia.
Prerequisites: MIS 501 or permission of department chair/program director.

MIS 550. Accounting Information Systems. 3 Credit Hours.
This course will examine the design, control and operation of accounting information systems with a strong emphasis on integration. The course will present a thorough introduction to basic information systems theory, provide a working knowledge of systems analysis and design techniques, databases and enterprise systems. Understanding and appreciation of accounting information systems is critical to successfully managing, auditing and developing systems to support today's evolving business environment. This course offers a focused look at accounting information systems as part of enterprise resource planning systems, with a focus on SAP and other comparable enterprise systems to demonstrate concepts.
Prerequisite(s): Grade of C or above in MIS 201 (or MIS 501), and in either ACT 203 and ACT 204, or in ACT 201 and ACT 202.
Cross-listed Courses: ACT 550

MIS 601. Digital Transformation. 3 Credit Hours.
This course covers the management, strategies, and performance of enterprises engaged in digital transformation. Digital strategies in value chain and supply chain activities, innovation and leadership during inflection points, and alignment of digital strategies with organizational capabilities and processes are introduced. Organizational value propositions and shared value strategies, ethics, and organizations' sustainability impacts are covered in the course. The role of digital leadership and governance, including ethics in compliance and audits, are important components of the course. Students will complete and present a semester-long project in digital transformation for an external organization. Guest speakers and case studies from local, national, and international organizations are employed in this course.
Prerequisite: MIS 501 or permission of department chair.

MIS 611. Crowds, Social Media & Digital Collaboration. 3 Credit Hours.
Over the past years, crowds, social media, and digital collaborations have emerged as important topics in the IS field. Social media and other social information systems not only support communications and collaborations among the general crowd but also harness collective intelligence for innovation. This course covers the basic concepts and theories of social media, crowdsourcing, remixing, and sharing economy. Students will also learn analytics and applications related to these trending topics. (Please note that students who have taken MIS 411 should not take this course).
Prerequisites: MIS 501 or permission of IS Department Chair.

MIS 690. Graduate Information Systems Independent Study. 3 Credit Hours.
This course provides an opportunity for graduate students to conduct independent research under the direction of a faculty member. Since the study of Information Systems is interdisciplinary, research linking business, technology and social and organizational science in explorations of how systems that convey information work can be studied independent study format--whether those systems are human, technological, natural, economic, social or other. Research in Information Systems thus explores technical and business topics, along with ethical questions that arise in business applications of technology in organizations. Open to students eligible for graduate Business of Information Systems research. Prerequisite(s): MIS-501; or permission of instructor.

MIS 701. Database Management Systems. 3 Credit Hours.
This course develops the framework for database systems analysis and design. Course topics focus on database design, data modeling, data integrity, security, database management approaches and techniques and distributed databases. Students are expected to complete a database project using commercially available software packages.
Prerequisite: MIS 501.

MIS 702. Cases in Business Analytics. 3 Credit Hours.
This course is designed to provide students with problem-solving skills in the field of quantitative management. The case approach is adopted to introduce complex real life examples to student-teams in a competitive environment. The course also introduces theoretical grounds for some analytical models emphasizing the assumptions and limitations of these models. The assigned cases include applications of regression, networking, linear programming, PERT, queuing theory, decision making under uncertainty and simulation. The students are required to use available computer packages as problem-solving tools and are encouraged to conduct sensitivity (what-if) analysis in their decision making approaches.
Prerequisite: ANL 601.

Cross-listed Courses: ANL 702

MIS 703. Systems Analysis and Design. 3 Credit Hours.
This course provides the building blocks for analysis and design of management information systems. The systems development life cycle, information gathering techniques, data and process modeling techniques and management of the systems analysis and design processes are covered. Students apply the concepts introduced using computer-aided software engineering (CASE) tools.
Prerequisite: MIS 501.

MIS 705. Advanced Business Analytics. 3 Credit Hours.
Data is useful if relevant and insightful information can be extracted from it to better understand the past (descriptive analytics), anticipate future events (predictive analytics), and direct the course of the best decision (prescriptive analytics). This course will cover different supervised and unsupervised machine learning algorithms, and their applications to structured and unstructured data including financial marketing, health care, social media, entertainment, and socio-economic data. te effective communication of the results and insights from the analysis, including via well-designed visualizations will be emphasized throughout the course. This course does not assume any prior exposure to machine learning theory or practice.
Prerequisite: ANL 601.

Cross-listed Courses: ANL 705

MIS 707. Risk Mgmt in Large Scale Systems. 3 Credit Hours.
This course focuses on the challenges associated with risk management in large-scale systems. It considers the nature of social, organizational and technological risk and discusses the role of risk analytic, risk management and risk communications. It also discusses several analytic approaches to risk management and mitigation and analyzes case studies of risk in several large-scale systems: aerospace, biomedical, global networks, healthcare, transportation and safety-critical domains such as firefighting and oil spill response. Using several strategic models, students discuss the importance of tactical and strategic risk management and employ several of the models in case analyses.
Prerequisite: MIS 501.

MIS 710. Health Information Systems. 3 Credit Hours.
This course provides students with the knowledge of the design, use, and evaluation issues of health informatics applications. The topics include: (1) health informatics as a discipline; (2) career options for health informatics; (3) major health applications and commercial vendors; (4) strategic information systems planning; and (5) new opportunities and emerging trends.
Cross-listed Courses: NSG 387, NSG 697, MIS 450

MIS 711. Managing Systems Projects. 3 Credit Hours.
This course focuses on introductory project management processes, technology and tools, utilizing the Project Management Institute's (PMI) Project Management Body of Knowledge (PMBOK) and the Software Engineering Institute's (SEI's) Capability Maturity Model Integration (CMMI) processes and nomenclature. Students examine the processes and theory of project management as well as industry case studies, and will utilize project management software in support of their management activities. Guest speakers and field research provide students with access and information from industry and academia. Students are engaged in a semester-long project. Initially, they are required to identify the project scope and team charter for their project; subsequent assignments require them to prepare a business case, work breakdown structure, cost estimate, and final project documentation for their project.
Cross-listed Courses: NSG 611

MIS 712. Information Systems and Network Security Cybersecurity. 3 Credit Hours.
This course provides an overview of the concepts and principles of telecommunications systems and networks, blending technical with managerial topics. Students will focus on the challenges inherent in securing financial telecommunications networks, particularly the challenges of insider threats. Students will local area networks, wide area networks, wireless networks, value-added networks, as well as other networks. Students will complete a series of network installation and test projects, and will analyze network design cases throughout the semester. Guest speakers from industry and case studies from on-going research will provide a real-world context for the topics discussed in class. Students may sit for network certification following completion of the course.
Prerequisites: MIS 501, or permission of the instructor.

MIS 715. Mobile Applications & Business Strategies. 3 Credit Hours.
The course explores the important challenges and needs of today's organizations to go mobile to connect with their stakeholders. Students will learn the technical, managerial and marketing aspects of mobile applications. Technically, they will learn the development process and technical infrastructure of mobile applications. Mangerially, students will learn how to develop business strategies to exploit mobile applications for the advancing and repositioning of organizations. For marketing, students will learn to market the newly developed mobile applications and at the same time to use mobile applications to market and promote the organizations and their products or services.
Cross-listed Courses: MKT 715

MIS 716. Business Intelligence. 3 Credit Hours.
This course provides an introduction to Business Intelligence, including the processes, methodologies, infrastructure, and current practices used to transform business data into useful information and support business decision-making. Business Intelligence requires foundation knowledge in data storage and retrieval, thus this course will review logical data models for both database management systems and data warehouses. Students will learn to extract and manipulate data from these systems and assess security-related issues. Data mining, visualization, and statistical analysis along with reporting options such as management dashboards and balanced scorecards will be covered. Technologies utilized in the course included SAP Business Warehouse, SAP Business Objects, Crystal Reports, and RapidMiner.
Prerequisite: MIS 501 or permission of the instructor.

Cross-listed Courses: ANL 716

MIS 717. Managing the Technological Enterprise. 3 Credit Hours.
This course covers the requirements, management and performance of enterprises engaged in the use of technology. Requirements determination, analysis, design and cost management activities for technological enterprises are covered; a focus on the management of life cycle costs is emphasized. The management of third party organizations, outsourcing and project management activities are also covered. The legal, environmental and ethical issues associated with the management and performance of technological enterprises are important components of this course. Guest speakers and case studies from local, national and international technological enterprises, agencies and regulatory organizations are employed in this course.
Prerequisites: MIS 501 or permission of instructor.

MIS 719. Marketing Analytics. 3 Credit Hours.
In a world where data is more valuable than oil, the need to apply cutting-edge computational analyses, in addition to conventional statistical approaches, to derive meaning from large noisy databases and provide insight into understanding the outcome of marketing strategies is becoming more important than ever. this course will teach students how to leverage data and use analytics to form impactful marketing strategies. By learning the different analytical approaches and how to apply them to make marketing decisions, students enhance their understanding of the importance of marketing analytics.
Prerequisites: MKT 601, STA 501, and MIS 501.

Cross-listed Courses: MKT 719, ANL 719

MIS 725. Distributed Enterprise Systems. 3 Credit Hours.
This course serves as an introduction to the cloud computing environment, discussing both fundamental concepts of how and why cloud systems work, as well as cloud technologies that manifest these concepts, such as Amazon AWS, Microsoft, Azure, and Open Stack. Students will learn about virtualizations, data parallelisms, security and privacy, cloud storage mechanisms, and cloud design architectures in the context of distributed systems. This course will be taught in a lab lecture style utilizing Amazon Web Services (AWS) as a learning platform.
Recommended predecessor courses: MIS 712, MIS 717.
Prerequisite: MIS 501, or permission of the department chair/program director.

MIS 730. Human Resource Information Systems. 3 Credit Hours.
This course will offer an understanding of how human resource information systems are applied in organizations to support organizational strategy, improve efficiency and flexibilty, increase productivity and performance, enhance retention and ensure compliance with employment law. The focus will be on merging information systems with a strategic human resource perspective. This course provides students with the knowledge, skills and abilities to identify, assess, develop and maintain an effective HR system. Students will develop a thorough understanding of the plan, design/acquisition, implementation and applications of a human resource information system (HRIS).
Prerequisites: MIS 501 and HRM 601 or permission of department chair.

Cross-listed Courses: HRM 730

MIS 740. Data Science. 3 Credit Hours.
This course will provide you the knowledge and techniques to approach phenomena analytically. Specially, you will learn the role and process of the data science lifecycle in understanding and gaining insight about phenomena, including how to ask the appropriate questions, identify the appropriate data and information needed, use the appropriate tools to analyze a large volume of data, evaluate the findings effectively with parameters, find the appropriate answers, and present the answers and compellingly. In the business context such knowledge can enable organizations to make quality decisions and develop important business strategies that can enhance organizational performance and that can contribute to significant financial gains. You will proficiently acquire such knowledge and techniques through class discussion, lectures, readings, as well as hand-on exercises. Prerequisite(s): STA 501.
Cross-listed Courses: ANL 740

MIS 741. Artificial Intelligence, Automation, and Analytics. 3 Credit Hours.
As artificial intelligence (AI) has generated revolutionary impacts on daily life and all sectors of business, it becomes critically important to learn to develop and work with AI tools. This course introduced the nature and techniques of artificial intelligence in business applications. It focuses on what has contributed to the adoption of AI by business so rapidly and profoundly: automating business tasks and processes and performing analytics to generate insights over business performance. Students will learn the knowledge of the AI project development life cycle as well and hands-on skills to utilize AI tools. In addition, the course explores such important topics as human working with AI, and responsible and ethical AI. At the end of the semester, students should be able to understand, participate in, lead and evaluate an AI project and technically competent in impactful AI tools.
Prerequisite: MIS 501 or department chair.

MIS 745. Deep Learning. 3 Credit Hours.
Deep learning is one class of machine learning algorithms. it is one of the fundamental topics of artificial intelligence. This course aims to provide students with the basics of deep learning so that students could apply it in various AI tasks. In this course, we will start with simple machine learning concepts and models, then we will move on to deep neural networks and their applications.
Prerequisite: STA 501.

MIS 747. Generative AI App Development. 3 Credit Hours.
This course focuses on the intricacies of Generative AI, with a concentration on practical applications and hands-on learning. The curriculum begins by covering the theoretical foundations of generative AI, exploring deep learning model backgrounds and transformer-based architectures, while examining their underlying mechanisms. Students will learn how to customize and deploy generative AI models, gaining the skills to integrate generative AI into business use cases. The course also focuses on designing and building g AI agents into complex automated workflows enabling sophisticated automation solutions. This course provides students with hands-on experience by equipping them with the cutting-edge skills required to navigate the fast-evolving field of generative AI and to drive innovations and meet organizational objectives in various industries.

MIS 771. Information Systems Research Methods. 3 Credit Hours.
Information systems, composed of technology, people, information, systems, organizations, policies, and society, contain many complex and interdependent elements. The large-scale systems within which many information systems reside, including organizations, technology systems, communities, nations, and even human biological systems, can be similarly complex, with interdependent elements. Information systems researches study technology, people, information, organizations and systems in order to understand information systems, and the interactions between and the impacts of those elements and information systems, on individuals, groups, organizations, and other systems. Research design is the process of formulating a research plan that addresses research questions of interest. A sound research design ensures that the data and evidence obtained assists in effectively addressing the research questions under study. Key to good research design are research methods, approaches and techniques used to carry our research, which are facilitated by the collection of meaningful and useful data and evidence, and by analysis, assessment and interpretation of that data and evidence. This course provides an overview of the fundamentals of research design and research methods, including research question and hypothesis formulation; data and evidence collection and analysis; and the challenges of research design and methods. Students in this seminar course work closely with a Le Moyne factuly mentor while conducting research in Information Systems, either on campus at Le Moyne or in the field. McDevitt Information Systems Research Scholars who have gone through a year-long faculty research mentoring process in previous years and have prepared and published their own research also seve as mentors to students in this class. Students and their mentors participate in bi-monthly research seminars led by the Le Moyne faculty mentor, at which they present their research, collaborate on their findings and discuss their progress. Open to students eligible for Master's Thesis research. Prerequisite(s): MIS 501.

MIS 785. Programming in Visual Basic With Visual Basic. 3 Credit Hours.
This class covers the basics of structured programming using Visual Basic to develop decision support systems or management science applications. The theory and practice of structured programming, logic, systems development are covered in a series of iterative hands-on assignments, which are designed based on practical decision support systems or management science applications. Students can expect to learn how to create and program advanced Excel applications or other equivalent applications. A term project involving the development and documentation of a Visual basic program is required.

MIS 790. Specl Topics in Mgmt Info Syst. 3 Credit Hours.
Courses in this series offer an in-depth exploration of specific issues within the field of management information systems, as well as topics of current interest to students and instructors.

MIS 795. Special Topics in Information Systems Research Methods. 3 Credit Hours.
Information systems, composed of technology, people, information, systems, organizations, policies, and society, contain many complex and interdependent elements. The large-scale systems within which many information systems reside, including organizations, technology systems, communitites, nations, and even human biological systems, can be similarly complex with interdependent elements. Information systems researchers study technology, people, information, organizations and systems in order to understand information systems, and the interactions between and the impacts of those elements and information systems, on individuals, groups, organizations, and other systems.
Prerequisite: MIS 501; or permission of instructor.

MIS 796. Information Systems Internship. 1-6 Credit Hours.
Participation in a real-world learning experience is provided in internship opportunities. The intern reports as required to a faculty member, and both student and faculty member assess the internship as it relates to the student's academic program and desired organizational experiences. Six hours of approved work experience is required to generate one credit. Prerequisite: permission of the program director.

MIS 799. Master's Thesis Research Project. 1-6 Credit Hours.
This course provides an opportunity for graduate students to conduct independent research under the direction of a faculty member. Since the study of Information Systems is interdisciplinary, research linking business, technology and social and organizational science in explorations of how systems that convey information work can be studied in a students masters thesis--whether those systems are human, technological, natural, economic, social or other. Research in Information Systems thus explores technical and business topics, along with ethical questions that arise in business applications of technology in organizations.