Information Systems (ISYS)

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Degrees Conferred:
Ph.D. in Business Administration (BADM)
M.I.S. in Information Systems (INSY)

Graduate Certificate:
Graduate Certificate in Enterprise Systems (ISESGC)

Program Description: The Master of Information Systems is designed to provide professional preparation for positions in business and government. It provides sufficient flexibility to meet the needs of students with various backgrounds and foster lifelong learning and innovation. Students may concentrate in one of four areas: Information Technology Management, Enterprise Resource Planning, Blockchain Enterprise Systems Management, or Software Engineering Management. The Ph.D. in Business Administration with an area of study in Information Systems is designed to produce a graduate with an understanding of the necessary subject matter required to contribute educational and research expertise to the field of information systems.

The program also offers a graduate certificate in Enterprise Systems to provide graduate students with knowledge and experience in information systems used in modern enterprise environments. The certificate includes three concentrations to allow students to focus on one facet of information systems.

Master of Information Systems

Master of Information Systems Program Website (https://walton.uark.edu/graduate-programs/master-of-information-systems/)

The Master of Information Systems is designed to provide professional preparation for positions in business and government. It provides sufficient flexibility to meet the needs of students with various backgrounds and foster lifelong learning and innovation. Students may concentrate in one of four areas: Information Technology Management, Enterprise Resource Planning (ERP) Management, Blockchain Enterprise Systems Management, or Software Engineering.

Admission Requirements: The Master of Information Systems program is open to students who have earned a bachelor’s degree from an accredited institution and who can present evidence of their ability to do graduate work. “Evidence of ability” means superior grade-point average, an acceptable test score on the Graduate Management Admission Test (GMAT) or Graduate Record Exam (GRE), and recommendations with respect to ability for successful pursuit of graduate-level work. International applicants and resident aliens must submit an acceptable TOEFL or IELTS score, or complete the Intensive English Language Program (Spring International Language Center) and receive an English proficiency recommendation for admission. Other admissions criteria can be considered on a case by case basis.

Requirements for the Master of Information Systems Degree: Students whose previous studies have fulfilled requirements of the common body of knowledge in business and information systems will be required to complete a minimum of 30 hours of graduate work. The required common body of knowledge in Information Systems includes management information systems, systems analysis, database, and programming languages (such as Visual Basic, Java, or other).

To ensure that students acquire the skills necessary for career success, the M.I.S. program strongly encourages all students to obtain additional training directly related to the M.I.S. program prior to graduation. The M.I.S. program considers this training an integral part of the curriculum and recommends that students work for up to one year in a position (or positions) which allow for the practical application of the theoretical principles taught in M.I.S. courses.

Students who hold non-immigrant status in the United States in the F-1 or J-1 categories are responsible for coordinating any necessary authorization for employment with the Office of International Students and Scholars (ISS). F-1 and J-1 students are strongly advised to discuss training options with the M.I.S. Program Director and the ISS office early in their program, and to make themselves aware of limitations and restrictions related to F-1 or J-1 employment authorization benefits.

Pre-M.I.S.

ISYS 511V IT Toolkit & Skills Seminar (This course may not be used for the Master of Information Systems degree.)

Core Courses

ISYS 5423 Seminar in Systems Development 3
ISYS 5833 Data Management Systems 3
ISYS 5843 Management of Information Technology Seminar 3

Areas of Concentration 15

Select one of the following concentrations:

Information Technology Management

ISYS 5213 ERP Fundamentals
ISYS 5503 Decision Support and Analytics

Computing Electives (9 hours) selected from approved ISYS and CSCE

Enterprise Resource Planning (ERP) Management

ISYS 5213 ERP Fundamentals
ISYS 5223 ERP Configuration and Implementation
ISYS 5233 Seminar in ERP Development

Select six hours from the following:

ISYS 5103 Data Analytics Fundamentals
ISYS 5133 Blockchain and E Business Development
ISYS 5173 Blockchain Fundamentals
ISYS 5453 Blockchain and Enterprise Data
ISYS 5503 Decision Support and Analytics
ISYS 5843 Seminar in Business Intelligence and Knowledge Management
Overview: The objective of the Ph.D. in business administration with concentration in information systems is to prepare students to conduct quality research in information systems as a faculty member at a research-oriented university school of business. The program is designed to produce a graduate with an understanding of the necessary subject matter required to contribute educational and research expertise to the field of information systems. In addition to preparing students to be world-class researchers, the program seeks to prepare students to teach effectively in an information systems curriculum.

Admission Requirements: In addition to the university’s Graduate School and Walton College of Business’ Graduate School of Business requirements, the ISYS Ph.D. program has the following requirement: Applicants are expected to have a background in information systems via prior courses in topics such as a programming language, systems analysis, design, and development, and database processing. Students without the background may also be admitted but will likely be required to take up to 3 master’s level courses to remedy the deficiency.

Requirements: Requirements for the Ph.D. in business administration with concentration in information systems include core courses and elective courses in information systems, research tools, and supporting fields. These 43 credit hours of courses are taken prior to advancing to candidacy and are broken down as follows: research tools (9 hours); ISYS core courses (21 hours); and supporting field courses (13 hours). Also, there is a requirement that students satisfactorily complete a one-hour Graduate Colloquium during the fall and spring semesters of each year when students are in residence on campus in pursuit of the degree. Following completion of the coursework, students must pass a comprehensive examination. The program also requires completion of 1st and 2nd year summer research projects, defense of a dissertation proposal, and successful defense of the dissertation (18 credit hours). Students are also prepared for a career in research through research assistantships, collaborative research projects with faculty members, colloquia, and classroom teaching and support.

Course Requirements

Research Tools

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISYS 5203</td>
<td>Experimental Design</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5623</td>
<td>Advanced Multivariate Analysis</td>
<td>3</td>
</tr>
</tbody>
</table>

Information Systems Core Courses

Select seven of the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ISYS 6133</td>
<td>Survey of IS Research</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 6233</td>
<td>Individual-level Research in IS</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 6433</td>
<td>Macro- and Meso-level IS Research</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 6633</td>
<td>Systems Development</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 6733</td>
<td>Emerging Topics</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 6833</td>
<td>Theory Development</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 601V</td>
<td>Graduate Colloquium</td>
<td>1</td>
</tr>
</tbody>
</table>

Supporting Fields

In addition to the WCOB 6111 Teaching Seminar and MGMT 6213, Research Methods Seminar, courses to meet this requirement will be determined in consultation with the ISYS Ph.D. program committee. (courses must be at the Ph.D. level, unless otherwise approved by the ISYS Ph.D. program committee). These courses are normally taken outside the ISYS Department and are in student’s area(s) of interest.

WCOB 6111 Seminar in Business Administration Teaching | 1
MGMT 6213 Seminar in Research Methods | 3

Comprehensive Examination

Written exam, research tools and IS (at the end of all coursework)
Oral exam
Summer Research Requirements

1st summer paper
2nd summer (to include a round of feedback and revision)

Dissertation Requirements
Successful defense of Dissertation proposal
Successful defense of Dissertation

Other Ph.D. Courses Taken
Students may take up to 9 hours of other Ph.D. courses, as necessary.

Masters Level Courses
Students typically without an information systems background will be required to take some Masters courses prior to taking their comprehensive examinations. These courses do not count toward the Ph.D. degree and are taken to remedy deficiencies. The ISYS Ph.D. program committee will determine whether a student needs to take one or more of these courses. The specific courses are:

- ISYS 5423 Seminar in Systems Development
- ISYS 5503 Decision Support and Analytics
- ISYS 5833 Data Management Systems

Residence Requirement

There is a strong preference for students to be in residence — i.e., be full-time students with assistantship duties — during the entire program. Residence requirements are intended to ensure that every student has ample opportunity for the intellectual development that can result from a sustained period of intensive study and close association with scholars in the intellectual environment of the university. The requirement recognizes that growth as an independent scholar is not merely a matter of class attendance, but rather involves a broader development of the intellect that comes through intensive study, independent research, sustained association with faculty members and other colleagues who share common scholarly and professional interests, attendance at seminars and colloquia, intensive reading and familiarization with library resources, consultation with specialists in other disciplines and resource centers, and the opportunity for broadened exposure to current intellectual issues as they are revealed in various campus offerings.

After filing a Declaration of Intent to pursue the doctoral degree, a student must fulfill a residence requirement as outlined in the Graduate Catalog (http://catalog.uark.edu/graduatecatalog/objectivesandregulations/#degreestext) section on doctors of philosophy and education degrees.

Graduate Certificate in Enterprise Systems

Paul Cronan
Director
WCOB 215
479-575-6130
cronan@uark.edu
Enterprise Systems Graduate Certificate Program Website (https://gsb.uark.edu/graduate-certificates/)

The Graduate Certificate in Enterprise Systems is a part-time program offered on campus, blended, and online. It is designed to provide graduate students with knowledge and experience in information systems used in modern enterprise environments. The demand for skilled professionals in information systems continues to outpace the supply of qualified applicants. Students may choose one of three concentrations for the Graduate Certificate in Enterprise Systems: Blockchain Enterprise Information Systems, Business Analytics, or Enterprise Resource Planning. The certificate program is intended to be completed part-time (ordinarily no more than six hours per semester), and is open to individuals with backgrounds in any discipline.

Admission Requirements: The Graduate Certificate in Enterprise Systems is a part-time program open to individuals with backgrounds in any discipline. Students must apply and be admitted to the Graduate School of Business; the GMAT/GRE requirement is waived for the Graduate Certificate in Enterprise Systems degree program. (Students who have earned a GPA 3.5 or better upon completion of the certificate program and subsequently apply to the part-time Master of Information Systems program (Professional M.I.S.) will not be required to submit a test score). Information regarding Graduate School of Business admission requirements can be found earlier in this chapter.

Requirements for the Graduate Certificate in Enterprise Systems: (12 hours)

To receive the Graduate Certificate in Enterprise Systems, students must select one of the tracks below. Students are required to take 9 hours of coursework in the Walton College of Business and 3 hours of electives related to Enterprise Systems in either the Walton College or in another college at the University of Arkansas. Elective courses other than those listed below must be approved by the director of the certificate program. Some elective courses have prerequisites that are not met by courses in the certificate program. Students are advised to check prerequisites prior to enrolling in a course.

Required Course
Choose at least one of the following depending on the track chosen:

- ISYS 5173 Blockchain Fundamentals
- ISYS 5103 Data Analytics Fundamentals
- ISYS 5213 ERP Fundamentals

Blockchain Enterprise Systems Track

This track is open to individuals with backgrounds in fields other than Information Systems and is designed to provide non-IS graduate students with the fundamental knowledge and skills needed to successfully transition to a career in the Information Systems field. Students who complete this track will have exposure to fundamental principles of blockchain, enterprise information systems, and techniques for management and development of blockchain projects.

Required Courses (9 hours)

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>ISYS 5173</td>
<td>Blockchain Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5133</td>
<td>Blockchain and E Business Development</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5453</td>
<td>Blockchain and Enterprise Data</td>
<td>3</td>
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</tbody>
</table>

Students should choose 3 hours of coursework from among the following:

<table>
<thead>
<tr>
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<th>Hours</th>
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<tbody>
<tr>
<td>ISYS 5103</td>
<td>Data Analytics Fundamentals (recommended)</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5213</td>
<td>ERP Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5463</td>
<td>Enterprise Transaction Systems</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5833</td>
<td>Data Management Systems</td>
<td>3</td>
</tr>
</tbody>
</table>

Total Hours 12

Business Analytics Track

This track is open to individuals with backgrounds in any discipline and is designed to give business and non-business graduate student's
knowledge and experience in the management and use of enterprise data for operations and decision-making. The ability to effectively manage and analyze increasingly large and complex sets of data is highly valued among employers in all disciplines, as “business intelligence” becomes a primary source of competitive advantage in many organizations. Students who complete this track will have a foundation in the effective management and use of relational and dimensional data, the application of statistical decision-making theory, and the exploration and exploitation of data using advanced data mining tools and techniques. Students completing this track may be eligible to receive a certificate endorsed by the SAS Institute.

**Required Courses (9 hours)**

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<tr>
<td>ISYS 5103</td>
<td>Data Analytics Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5503</td>
<td>Decision Support and Analytics</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5843</td>
<td>Seminar in Business Intelligence and Knowledge Management</td>
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<td>ISYS 511V</td>
<td>IT Toolkit &amp; Skills Seminar (this course may not be used for the Masters of Information Systems Degree)</td>
</tr>
<tr>
<td>ISYS 5133</td>
<td>Blockchain and E Business Development</td>
</tr>
<tr>
<td>ISYS 5213</td>
<td>ERP Fundamentals</td>
</tr>
<tr>
<td>ISYS 5423</td>
<td>Seminar in Systems Development</td>
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<td>ISYS 5833</td>
<td>Data Management Systems</td>
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</tbody>
</table>

Total Hours 12

**Enterprise Resource Planning Track**

This track is open to individuals with backgrounds in any discipline and is designed to provide business and non-business graduate students a foundation in the effective use, implementation, and customization of Enterprise Resource Planning (ERP) systems. ERP systems support integrated core business processes in nearly every large organization, and knowledge of and experience with these systems are highly valued among employers in all business disciplines. Students who complete this track will have exposure to fundamental principles of ERP and techniques for configuration, implementation, and development of ERP systems. Students completing this track may be eligible to receive a certificate endorsed by SAP America and the SAP University Alliances Program.

**Required Courses (9 hours)**

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<td>ISYS 5213</td>
<td>ERP Fundamentals</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5223</td>
<td>ERP Configuration and Implementation</td>
<td>3</td>
</tr>
<tr>
<td>ISYS 5233</td>
<td>Seminar in ERP Development</td>
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<td>Data Analytics Fundamentals</td>
</tr>
<tr>
<td>ISYS 5173</td>
<td>Blockchain Fundamentals</td>
</tr>
<tr>
<td>ISYS 5453</td>
<td>Blockchain and Enterprise Data</td>
</tr>
<tr>
<td>ISYS 5833</td>
<td>Data Management Systems</td>
</tr>
</tbody>
</table>

Total Hours 12

**Graduate Faculty**

**Anand, Abhijith**, Ph.D. (University of Waikato), M.I.S. (University of Wollongong), B.E. (K.S. Institute of Technology), Assistant Professor, 2017.

**Bright, Brittany Michelle**, M.I.S. (University of Arkansas), B.S. (University of Arkansas, Fort Smith), Instructor, 2010.


**Bruce, David E.**, M.I.S. (University of Arkansas), Lecturer, 1999.

**Conway, Daniel, Ph.D.** (Indiana University), Teaching Professor, .

**Cronan, Timothy P.**, Ph.D. (Louisiana Tech University), M.S. (South Dakota State University), B.S. (University of Southwestern Louisiana), Professor, 1979.


**Ehrhardt, Joseph, M.I.S.** (University of Arkansas), Instructor, 2014.

**Freeze, Ron, Ph.D.** (Arizona State University), M.B.A. (University of Missouri–Kansas City), B.S. (General Motors Institute), Clinical Associate Professor, 2015.

**Grover, Varun, Ph.D.** (University of Pittsburg), M.B.A. (Southern Illinois University), B.S. (Indian Institute of Technology), Distinguished Professor, 2017.

**Hoehle, Hartmut, Ph.D., B.Com.** (Victoria University of Wellington), Associate Professor, 2013.

**Keifler, Elizabeth, Ph.D., M.A.** (University of Arkansas), B.S. (East Central University), Teaching Assistant Professor, 2016.

**Kindy, Phillip D., M.I.S.** (University of Arkansas), B.S. (DeVry Institute of Technology), Instructor, 2012.

**Lacity, Mary, Ph.D.** (University of Houston), B.S.B.A. (Pennsylvania State University), Professor, 2018.

**Ma, Xiao, Ph.D.** (University of Wisconsin), M.A. (Syracuse University), B.A. (Nanjing University), Assistant Professor, 2014.

**Mackey, Andrew, M.S.** (University of Arkansas), Instructor, 2014.

**Maladi, Suresh, Ph.D.** (University of Michigan), M.S. (Carnegie Mellon University), M.B.A. (National Institute of Technology), B.E. (Osmania University), Assistant Professor, 2014.

**McDaniel, Beverly, M.Ed.**, B.S. (University of Arkansas), Instructor, 1993.

**Mullins, Jeff, M.A.**, B.S. (University of Arkansas), Assistant Professor, 2006.

**Sabherwal, Rajiv, Ph.D.** (University of Pittsburgh), P.G.D.M. (Indian Institute of Management), B.S.E.E. (Regional Engineering College, India), Distinguished Professor, 2011.

**Serrano, Christina, Ph.D.** (University of Georgia), B.B.A. (Armstrong Atlantic State University), Assistant Professor, 2011.

**Selia, Pankaj, Ph.D.** (Michigan State University), M.B.A. (Management Development Institute), B.S. (University of Delhi, India), Associate Professor, 2008.

**Steelman, Zachary R., Ph.D., M.I.S.** (University of Arkansas), B.S.A. (Northeastern State University), Assistant Professor, 2017.

**Sykes, Tracy Ann, Ph.D.** (University of Arkansas), B.S. (University of Maryland-College Park), Associate Professor, 2011.

**Syler, Rhonda A., Ph.D.** (Auburn University), M.B.A. (Columbus State University), M.S. (Kansas State University), B.S. (Middle Tennessee State University), Clinical Assistant Professor, 2016.

**Venkatesh, Viswanath, Ph.D.** (University of Minnesota-Twin Cities), B.E. (Bharathiar University, India), Distinguished Professor, 2004.

**Courses**

**ISYS 5103. Data Analytics Fundamentals. 3 Hours.**

Fundamental knowledge and skills in several major areas of business data analytics. Emphasis on the management and use of data in modern organizations, intermediate & advanced spreadsheet topics; relational databases & SQL; and programming (such as Python). Prerequisite: MIS Director approval. (Typically offered: Fall)
ISYS 511V. IT Toolkit & Skills Seminar. 1-3 Hour.
Seminar in Information Systems solutions and concepts (such as applications development, VB.NET, analysis of problems and design of solutions via application systems, etc.) designed for students entering the MIS program--may not be used for MIS degree credit. Prerequisite: MIS Director approval. (Typically offered: Irregular) May be repeated for up to 3 hours of degree credit.

ISYS 5133. Blockchain and E Business Development. 3 Hours.
This course explores various blockchain and e-business development technologies and then utilizes these technologies for developing a realistic application. Students will also learn strategies and use a varied web stack to build web pages that interact with blockchain platforms. Pre- or corequisite: ISYS 5173. (Typically offered: Fall)

ISYS 516V. Independent Study. 1-3 Hour.
(Formerly ISYS 450V.) Permits students on individual basis to explore selected topics in data processing and/or Quantitative Analysis. Graduate degree credit will not be given for both ISYS 450V and ISYS 516V. (Typically offered: Fall and Spring)

ISYS 5173. Blockchain Fundamentals. 3 Hours.
This course provides the fundamental concepts underpinning blockchain technologies. The focus is on blockchain applications for business. Students will learn about the overall blockchain landscape, including investments, the size of markets, major players and the global reach, as well as the potential business value of blockchain applications and the challenges that must be overcome to achieve that value. Students will learn enough about the underlying technologies to speak intelligently to technology experts and will be well-prepared to develop blockchain applications in future courses. Prerequisite: Graduate standing and departmental consent. (Typically offered: Fall, Spring and Summer)

ISYS 5203. Experimental Design. 3 Hours.
ANOVA, experimental design, introduction to basis of statistics. Prerequisite: Graduate standing and WCOB 1033 or equivalent. (Typically offered: Fall)

ISYS 5213. ERP Fundamentals. 3 Hours.
An introduction to enterprise resource planning systems. Students should gain an understanding of the scope of these integrated systems that reach across organizational boundaries and can change how a company does business. Implementation issues are covered, including the importance of change management. Prerequisite: Graduate standing. (Typically offered: Fall and Summer)

ISYS 5223. ERP Configuration and Implementation. 3 Hours.
The process of configuring and implementing an enterprise resource planning system. Business process analysis and integration. Students will develop a company and set up several modules in SAP for use. Develop understanding of how the business processes work and integrate. Prerequisite: ISYS 5213 or equivalent. (Typically offered: Fall and Spring)

ISYS 5233. Seminar in ERP Development. 3 Hours.
ERP administration and system development practices. Advanced system support issues related to Enterprise Resource Planning systems that are used in global organizations. Basic ABAP programming. In addition, students will learn how to provide basic systems administration support of the operating system, database, and application systems software levels of ERP systems. Pre- or Corequisite: ISYS 5223. Prerequisite: ISYS 5213. (Typically offered: Spring) May be repeated for up to 6 hours of degree credit.

ISYS 5243. Current Topics in Computer Information. 3 Hours.
(Formerly ISYS 4243.) Intensive investigation of selected developments in computer information systems hardware, software, and organization having current impact on computer information systems design and application. Offering an extension of lower-level CIS courses through individual student research and faculty team-teaching of advanced topics. Topical selection made with each course offering. Graduate degree credit will not be given for both ISYS 4243 and ISYS 5243. (Typically offered: Irregular) May be repeated for up to 6 hours of degree credit.

ISYS 535V. Internship Experience. 1-6 Hour.
This course allows a student to experience an internship within a business and benefit from the work experience. The internship focuses on applications and business problems and is supervised by a faculty member as well as a member of the company/firm. Prerequisite: MIS Director approval. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

ISYS 5363. Business Analytics. 3 Hours.
This course in managerial business analytics provides future managers with the key concepts of decision modeling and information technology management concepts. Students will learn to utilize real time operational business data, as well as quickly process and effectively leverage information. In addition, students will exercise strategic IT deployment skills for supply chain and marketing processes as well as develop strong decision modeling abilities. (Typically offered: Spring)

ISYS 5373. Application Development with Java. 3 Hours.
(Formerly ISYS 4373.) This course covers object-oriented programming concepts and illustrates them via an appropriate object-oriented programming language. Students will be exposed to the design of software objects, creation of software objects, and the use of objects in constructing an information system. Graduate degree credit will not be given for both ISYS 4373 and ISYS 5373. Prerequisite: ISYS 3923 with a grade of C or better. (Typically offered: Fall)

ISYS 5403. Quantitative Methods and Decision Making. 3 Hours.
Utilization of information, quantitative techniques, and computer application in decision making and problem solving for managers. (Typically offered: Irregular) This course is cross-listed with SCMT 5133.

ISYS 5423. Seminar in Systems Development. 3 Hours.
Advanced study of structured systems development. Emphasis on strategies and techniques of structured analysis and structured design for producing logical systems specifications and for deriving physical systems designs. Coverage of methodologies for dealing with complexity in the development of information systems. Prerequisite: ISYS 511V. (Typically offered: Fall)

ISYS 5433. Enterprise Systems. 3 Hours.
Enterprise Systems comprises the entire class of information technology and systems that support the mission of the company including decision support and business processes. This managerial enterprise systems course focuses on strategic issues of information technology. Students study the various elements and integration of an organization's business processes; as a result, students gain an understanding and working knowledge of systems used to support these business processes and their use in decision making. In addition, students will study concepts and develop skills needed to utilize decision-centric business intelligence and knowledge management applications. (Typically offered: Spring)

ISYS 5453. Blockchain and Enterprise Data. 3 Hours.
The focus of this course is to expose students to working with distributed and service oriented architectures for different applications as well as the IT infrastructure needed. The course provides the opportunity for students to gain valuable insight into blockchain as a distributed system and cloud architecture platforms with the goal of developing enterprise applications. Prerequisite: ISYS 5133. (Typically offered: Spring)

ISYS 5463. Enterprise Transaction Systems. 3 Hours.
Being able to accurately capture and store business transactions is an important processing function in many businesses. For many large companies with high volume processing, the tools of choice for transaction processing are applied. This course provides students with the necessary understanding and skills to develop advanced applications in mainframe environment. Pre- or Corequisite: ISYS 5453 or equivalent or MIS Director approval. (Typically offered: Irregular)
ISYS 5503. Decision Support and Analytics. 3 Hours.
Analysis of the highest level of information support for the manager-user. A study of systems providing analytics-based information derived from databases within and/or external to the organization and used to support decision making. Application of tools in business analytics, problem solving, and decision making. Prerequisite: MIS Director approval. (Typically offered: Fall)

ISYS 5603. Analytics and Visualization. 3 Hours.
This course focuses on how to discern and tell your story visually using data based on traditional graphical data representation as well as the latest data and information technologies. Coverage includes both visualization theory and hands-on exercises using appropriate computing tools. The course will also include visualization of predictive, clustering, and association models. The opportunities and challenges of Big Data visualization will be explored. Corequisite: Lab component. Prerequisite: (ISYS 5503) or (ISYS 5133 and departmental consent). (Typically offered: Fall)

ISYS 5713. Seminar in IS Topics. 3 Hours.
Intensive seminar in selected information systems topics. Topical selection made with each course offering. Prerequisite: ISYS 511V or MIS Director approval. (Typically offered: Irregular) May be repeated for up to 9 hours of degree credit.

ISYS 5723. Advanced Multivariate Analysis. 3 Hours.
Factor analysis and other advanced techniques. Prerequisite: ISYS 5623. (Typically offered: Irregular)

ISYS 5833. Data Management Systems. 3 Hours.
Investigation and application of advanced database concepts include database administration, database technology, and selection and acquisition of database management systems. Data modeling and system development in a database environment. Prerequisite: ISYS 5103. (Typically offered: Spring)

ISYS 5843. Seminar in Business Intelligence and Knowledge Management. 3 Hours.
Business intelligence focuses on assessing and creating information and knowledge from internal and external sources to support business decision making process. In this seminar, data mining and information retrieval techniques will be used to extract useful knowledge from data, which could be used for business intelligence, and knowledge management. Pre- or Corequisite: ISYS 5833 or equivalent. Prerequisite: ISYS 5503 or equivalent. (Typically offered: Spring)

ISYS 593V. Global Technology and Analytics Seminar. 1-3 Hour.
This course is designed to provide an updated, comprehensive, and rigorous treatment of emerging global topics. Includes, but is not limited to, global study experiences, business insights, and foundational perspectives; examines significant issues from global perspectives. Prerequisite: Department Consent, Graduate standing, and MIS Director approval. (Typically offered: Summer) May be repeated for up to 3 hours of degree credit.

ISYS 5943. Management of Information Technology Seminar. 3 Hours.
Presented in a way that allows you to play an active role in the design, use, and management of information technology. Using IT to transform the organization, as competitive strategy, and creating new relationship with other firms is included. Pre- or Corequisite: ISYS 5833. Prerequisite: ISYS 5423. (Typically offered: Spring)

ISYS 599V. Practicum Seminar. 1-6 Hour.
This course is designed to introduce and engage the student in the practice, application, and problem solving in the business environment. Hands-on application of a business problem. Students will gain experience working on, making decisions about, and developing solutions for business applications. Topics include but not limited to analytics, data, and information technology. Prerequisite: Graduate standing and MIS Director approval. (Typically offered: Fall, Spring and Summer) May be repeated for up to 6 hours of degree credit.

ISYS 601V. Graduate Colloquium. 1-6 Hour.
Presentation and critique of research papers and proposals. (Typically offered: Fall and Spring)

ISYS 6133. Survey of IS Research. 3 Hours.
This is an introductory seminar in information systems research for doctoral students. Its objective is to introduce participants to major streams of IS research and discuss many of the important roles and responsibilities of an IS researcher. Also, this course will play the important role of introducing participants to the research of the current IS faculty. (Typically offered: Fall)

ISYS 6333. Individual-level Research in IS. 3 Hours.
This course aims to expose students to individual-level research in IS. It provides a window into major streams of individual-level research in IS and reference disciplines. (Typically offered: Irregular) May be repeated for up to 18 hours of degree credit.

ISYS 636V. Special Problems. 1-6 Hour.
Independent reading and research under supervision of senior staff member. (Typically offered: Irregular) May be repeated for up to 6 hours of degree credit.

ISYS 6533. Macro- and Meso-level IS Research. 3 Hours.
This course aims to expose students to research at the macro- and meso-levels. For example, it could provide a window into major streams of organizational-level research in IS and reference disciplines. Topics could also include: change management, ERP research models, implementation, applications, and successes/failures, and ERP simulation models. Other topics that fall within the purview of the course are: large-scale technology and process innovations in organizations--e.g., software development process innovations and RFID will be examined at various levels (e.g., organizational). (Typically offered: Irregular)

ISYS 6633. Systems Development. 3 Hours.
The course provides an in-depth study of systems development as an area of research, understanding of the theoretical and conceptual foundations, insight into the current state of the research area, utilizes both IS and reference discipline literature as appropriate, guidance for conducting research projects and producing publishable research, an opportunity to work on cutting-edge research. (Typically offered: Irregular)

ISYS 6733. Emerging Topics. 3 Hours.
Various emerging topics, such as RFID applications and RFID supply chain, ethical decision models, behavioral modeling, piracy and privacy issues, and virtual worlds. (Typically offered: Irregular) May be repeated for up to 15 hours of degree credit.

ISYS 6833. Theory Development. 3 Hours.
To acquire theory development and writing skills, to understand challenges in developing and writing theory sections of papers, and to discuss approaches to writing good empirical journal articles. This course is suited for all social sciences students and is particularly appropriate for students conducting behavioral research in the business disciplines. (Typically offered: Irregular)

ISYS 700V. Doctoral Dissertation. 1-18 Hour.
Doctoral Dissertation. Prerequisite: Candidacy. (Typically offered: Fall, Spring and Summer) May be repeated for degree credit.