INFORMATION SYSTEMS AND BUSINESS ANALYTICS

Department of Information Systems and Business Analytics

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- Information Systems, M.S. (https://catalog.baylor.edu/graduate-school/curriculum-departments-institutes-instruction/hankamer-school-business/information-systems-business-analytics/information-systems-msis/)
  - Business Analytics Concentration (MSIS) (https://catalog.baylor.edu/graduate-school/curriculum-departments-institutes-instruction/hankamer-school-business/information-systems-business-analytics/information-systems-msis/business-analytics-concentration-msis/)
  - Cyber Security Concentration (MSIS) (https://catalog.baylor.edu/graduate-school/curriculum-departments-institutes-instruction/hankamer-school-business/information-systems-business-analytics/information-systems-msis/cyber-security-concentration-msis/)
  - Entrepreneurship Concentration (MSIS) (https://catalog.baylor.edu/graduate-school/curriculum-departments-institutes-instruction/hankamer-school-business/information-systems-business-analytics/information-systems-msis/entrepreneurship-concentration-msis/)
- Business Analytics, M.S. (Residential) (https://catalog.baylor.edu/graduate-school/curriculum-departments-institutes-instruction/hankamer-school-business/information-systems-business-analytics/business-analytics-ms-residential/)
- Business Analytics, M.S. (Online) (https://catalog.baylor.edu/graduate-school/curriculum-departments-institutes-instruction/hankamer-school-business/information-systems-business-analytics/business-analytics-ms-online/)
- Information Systems, Ph.D. (https://catalog.baylor.edu/graduate-school/curriculum-departments-institutes-instruction/hankamer-school-business/information-systems-business-analytics/information-systems-phd/)

Management Information Systems (MIS)

MIS 5111 MSIS Career and Professional Development (1)
Pre-requisite(s): Admission to MSIS Program
This course consists of a variety of career exploration and development experiences designed to help students identify their career interest and prioritize and focus their job search efforts, as well as develop their leadership, communication, and personal marketability skills.

MIS 5145 Excel Modeling Fundamentals (1)
Pre-requisite(s): Admission to graduate business program
This course provides students with essential spreadsheet (Excel) modeling skills in preparation for coursework in graduate business programs. Special attention is given to navigating the Excel environment, formatting and basic functions, data analysis, charts, and modeling best practices

MIS 5151 Technical Foundations of Information Systems (1)
Part one of this course provides an overview to examine the role of information technology (IT) in business organizations, its impacts, and potential for enhancing a firm's competitive positioning. Part two exposes students to the four underlying technical elements of IT infrastructure: hardware, software, databases, and networks. This technology overview provides students with basic literacy in technology concepts to enable effective communication with technical specialists in the business environment.

MIS 5152 The Innovative Tech Leader (1)
Pre-requisite(s): Admission to MBA Program
Course examines the role of information technology (IT) in creating competitive advantage, enhancing value, and driving innovation in organizations with a focus on examining the cross-functional leadership skills required to successfully plan, develop, deploy, and lead IT projects in enterprise environments. Students build skills in assessing risk, dealing with ambiguity, and understanding the strategic role IT plays in organizations.

MIS 5153 Managing the IT Resource (1)
Pre-requisite(s): MIS 5152
Part one of this course examines principles and practices related to effective systems development practices from the standpoint of a non-technical manager. We begin the section with a discussion of the systems development life cycle (SDLC) and augment this with a discussion of emerging systems development trends and practices as well as an examination of traditional systems development methodologies. Part two of the course examines various IT risk management and security issues.

MIS 5301 Seminar in Object-Oriented Business Programming (3)
Students will survey object-oriented concepts currently used in the development of business applications. Emphasis will be placed on programming logic, data structures, and program analysis.

MIS 5310 Business Telecommunication and Networking (3)
The use of telecommunications to network and integrate various information technology platforms. Beginning with the media and hardware used in digital communications, the course moves through the ISO model to the presentation and application layers. Hands-on projects are utilized throughout the course to illustrate how various network operating systems are implemented and to provide training on the more popular platforms.

MIS 5315 NET Systems Development (3)
Pre-requisite(s): MIS 5301
Presents current technological solutions to business information needs. The course focuses on tools available to IS professionals to develop business applications that can run on networks and client/server systems. Emphasis will be placed on "NET" development of client/server systems.

MIS 5316 Development of Object-Oriented Business Systems (3)
The objective of the course is to present a total client-server approach to development. The thin-client portion of the course is directed towards browser hosted data collection and presentation using JavaScript. The course presents fundamental JavaScript control syntax, function definition and HTML form processing. The server-side concentrates on PHP for server processing with languages like PERL and C added to the course as time allows.

MIS 5317 Seminar in Java Development (3)
Pre-requisite(s): MIS 5301
Seminar in client-side application development using the Java programming language. Topics include object-oriented design, essential language syntax, and developing user, file, and Internet interfaces for business systems to support e-commerce initiatives.

MIS 5319 Development of Mobile Applications (3)
Study of applications development in a cross-platform mobile computing environment.

MIS 5322 Advanced Python for Analytics (3)
Preprequisite(s): MIS 5301 or equivalent. Study of advanced topics in the Python programming language. Focus is on data analytics and data science. Main topics include data visualization, array processing, data mining, machine learning, natural language processing, and web application development. Projects cover game development using PyGame and web app development using Django.

MIS 5325 Information Systems for Management (3)
Emphasizes the importance of information and information technology in managing firms today. The case-oriented course includes topics such as information technology types and trends, the assessment and management of information systems projects, and the relationship of technology to organizational strategy, structure, controls, and effectiveness.

MIS 5330 Global Dimensions of Information Systems (3)
As business becomes more global in nature, information systems and technology will become increasingly important to the successful management of business enterprises. This course will examine the international business environment and how information systems and technology can be utilized in that environment. Specific topics to be covered include international standards, problems with transnational flows of data and information, international standards, telecommunications and global connectivity, strategic planning to gain global competitive advantage, and human resources related to global information systems.

MIS 5331 Project Management (3)
Cross-listed as MGT 5331
See MGT 5331 for course information.

MIS 5332 Advanced Project Management: The Systematic Implementation of Complex Organizational Project (3)
Cross-listed as MGT 5332
See MGT 5332 for course information.

MIS 5335 Information Systems Analysis and Design (3)
To acquaint students with the concepts, problems, and possible solutions for all stages of the systems development life cycle. Emphasis on object-oriented analysis and design techniques. Topics include modeling with UML, the role of the IS professional in the development of successful systems, and project management.

MIS 5340 Database Management Systems (3)
Pre-requisite(s): Graduate level standing
The use of database techniques to represent and manipulate data in the development of information systems. Includes rationale and objectives of the database approach; conceptual data modeling; logical database design; mapping logical design to the relational data model; physical design and implementation of databases; manipulating information in databases; database administration; and connecting applications to databases, including web-enabled applications.

MIS 5341 Advanced Database Management (3)
Pre-requisite(s): MIS 5340 or consent of instructor
This course will cover advanced topics in database design and implementation, including the storage, access, and management of business information to facilitate decision-making. Topics may include advanced SQL commands, application data access using PL/SQL and/or ASP, advanced topics in database systems such as XML and data warehouses, and database administration topics. A technical presentation may be required.

MIS 5342 Business Intelligence (3)
Business Intelligence (BI) is the discovery of patterns and relationships hidden in large volumes of data. This hands-on course is designed to provide practical analytic skills that may be applied in almost any workplace. The course explores the analytical techniques for making intelligent business decisions in data-rich organizations. A key component of the course is the use of BI software tools with techniques such as correlation analysis, data visualization, linear regression, classification, and clustering to address common problems in marketing, customer relationship management, risk management, finance, and operations.

MIS 5343 Seminar in Data Visualization (3)
Covers basic theories of cognition and data visualization, including how data types influence the decision to use a particular representation, when to use various chart types, how to structure data visualizations, and visualization evaluation. Emphasis on ethical use of visualizations.

MIS 5345 Decision Making Using Excel (3)
This computer applications course provides students with advanced data analysis and modeling skills necessary for manipulating, sharing, and presenting data to support business decision making. Major topics include basic statistical concepts in Excel, complex queries, importing external data, data cleansing, pivot tables, macros, text manipulation, multiple applications linking, simulation modeling, decision making under uncertainty, and special topics.

MIS 5346 Data Warehousing (3)
Pre-requisite(s): MIS 5340 or consent of instructor
This course focuses on data warehouses as a component of business intelligence. The course will cover techniques for designing, implementing, and analyzing data in data warehouses using a hands-on approach. The course also discusses managerial and ethical issues in implementing data warehouses.

MIS 5347 Text Analytics (3)
Pre-requisite(s): QBA 5131 or consent of instructor
Text Analytics analyzes unstructured responses such as those from open-ended surveys, blogs, and online communities, to identify underlying themes and sentiment that are not immediately apparent. This analysis discipline has current application in market research, intelligence and security, healthcare and life science, recruiting, and legal compliance. The course gives particular attention to developing a process for using text analytics technology to yield valid and reliable results.

MIS 5355 Management of Information Systems (3)
Pre-requisite(s): Admission to MS/IS program
Future information systems leaders and managers focus on understanding the issues involved in deploying information systems in organizations, the evaluation and adoption of emerging information and communication technologies (ICTs), the strategic role of the IS function, and the relationship of IS with the overall enterprise. Course coverage includes in-depth analysis of current issues in the field of information systems.

MIS 5375 Business Process Planning (3)
This course explores the history of Business Process Reengineering/ Redesign, the use of BPR in today's business environment, and how BPR can enable changes inherent in moving to Enterprise Resource Planning, E-Commerce and Customer Relationship Management. The course involves students in the analysis of real business processes from case studies and local businesses. CASE tools are used to develop both "as is" and "to be" business scenarios for understanding the change process.

MIS 5390 Ethics in Data Analytics (3)
Pre-requisite(s): QBA 5330, STA 5300, or equivalent
Ethical decision-making in data analytics and contemporary issues. Topics include ethics theory, American Statistical Association Ethical Guidelines for Statistical Practice, ethics issues in statistical analyses and presentation of data, ethical consideration in the information age, and data ethics in contemporary issues.

MIS 5450 Management of Information Systems (4)
This course deepens student's understanding and appreciation of the strategic role that information technology plays in organizations and provides key concepts for effectively planning, building, deploying, and managing information resources in enterprise environments. The course is relevant for students seeking career opportunities in IT management or consulting and individuals aspiring to a career in general (non-IT) management.

MIS 5V95 Internship in Information Systems (1-6)
Pre-requisite(s): Consent of instructor
Provides students with a carefully directed real-world learning experience. A project developed jointly by the sponsoring company and faculty provides experience in various IS functions and business activities.

MIS 5V98 Special Studies in Information Systems (1-6)
Pre-requisite(s): Consent of instructor
Offered on demand for one to six semester hours of credit.

MIS 5V99 Thesis (1-5)
Pre-requisite(s): Consent of instructor
Research, data analysis, writing, and oral defense of an approved master's thesis. At least five hours of MIS 5V99 are required.

MIS 6310 Foundations in Information Systems Research (3)
A seminar covering key classical information systems readings and theoretical perspectives designed to help students critically think and constructively criticize research papers in the field.

MIS 6320 Quantitative Methods in Information Systems Research (3)
This course is designed to provide doctoral level students with an introduction to the major methodological issues and techniques associated with quantitative research. Emphasis is given to the techniques that are most commonly used in information systems research.

MIS 6325 Quantitative Methods: Survey Research Using PLS Analysis (3)
This course focuses on the understanding and use of Partial Least Squares (PLS) methodology in IS research contexts. PLS is used by students to simulate path analysis procedures using data gathered by the professor. Requirements of the course include learning the fundamental statistical foundations underlying structural equations modeling and soft modeling and survey methods. This course provides direction for the successful completion of an independent research project using PLS that will be submitted to an IS conference and/or journal.

MIS 6330 Theoretical Perspectives in Information Systems Research (3)
A seminar designed to provide doctoral students across different disciplines a broad introduction to key management, organizational, and behavioral research issues, and challenges in topics of information technology (IT). The course is designed for both information systems (IS) and non-IS Ph.D. students.

MIS 6340 Qualitative Methods in Information Systems Research (3)
A seminar designed to provide doctoral level students with an introduction to the major methodological issues and techniques associated with qualitative research. Emphasis is given to case research strategies, both positivist and interpretive, but the course will also discuss action research.

MIS 6345 Qualitative Methods: Collecting and Analyzing Case Study Data (3)
The course covers the conceptual foundations of the qualitative research process that includes gaining access to a field site, conducting interviews, writing field notes, coding and analyzing data using a qualitative analysis software tool, and writing research results. Additionally, students will have the opportunity to code and analyze real-world data using a qualitative data analysis tool.

MIS 6350 Conducting Effective Literature reviews: A Doctoral Seminar for pre-Dissertation Students (3)
A course to help doctoral students learn to write theory-building literature reviews. Doctoral students taking this class will read and discuss a variety of review papers published primarily in MIS quarterly, but also in several other journals from management literature.

MIS 6370 Contemporary Issues in Information Systems Research (3)
This course aims to help doctoral students gain exposure to the latest in IS research. The emphasis will be given on the research published in the highest quality IS journals over the past year as well as research appearing in the top conferences in the past year.

MIS 6372 Seminar in Group Communication and Decision-making (3)
This course is designed to provide the participant with a basis for developing a rich understanding concerning the nature of information systems in support of group communication and decision-making within the organization. The primary focus involves the interaction of these systems with the behavioral systems within the firm.

MIS 6374 Organization Theory and its Application in Information Systems Research (3)
A seminar designed to acquaint students with the theories used to examine phenomena related to the introduction, adoption, use, and exploitation of information systems in organizations. The bulk of the material covered will be at the organizational level of analysis.

MIS 6380 Ethics in Contemporary Topics in Information Systems (3)
This doctoral seminar examines ethical issues and dilemmas in contemporary and emerging topics within information systems. The course takes an interdisciplinary approach to eight areas related to information systems.

MIS 6398 Research Apprenticeship I (3)
Pre-requisite(s): Completion of first year of Ph.D. program
Students are assigned to a research mentor to facilitate understanding of the research process with the goal of producing a manuscript suitable for submission to a conference proceedings or journal article.

MIS 6399 Research Apprenticeship II (3)
Pre-requisite(s): MIS 6398; completion of second year of Ph.D. program
Students are assigned to a research mentor to facilitate understanding of the research process with the goal of producing a manuscript suitable for submission to a conference proceedings or journal article.

MIS 6V00 Dissertation Proposal (1-9)
Pre-requisite(s): Completion of all required coursework for PhD in MIS
Research for doctoral students who have completed their required coursework but are not yet registered for MIS 6V99. The course may be repeated.

MIS 6V98 Special Studies in Information Systems (1-6)
Specialized study for PhD students in Information Systems. Special studies are offered on demand and may count for one to six semester credit hours. They may be taken more than once provided the title and content substantially differ from prior special studies courses.

MIS 6V99 Dissertation (1-12)
Pre-requisite(s): Completion of coursework and comprehensive exam
Supervised research for the doctoral dissertation.

Information Security (ISEC)

ISEC 5305 Seminar in Information Security Foundations (3)
Pre-requisite(s): Graduate standing
Covers fundamental concepts in information security through providing students with a common body of knowledge in key information security knowledge domains. Coverage of these knowledge domains prepares entry-level professionals in both technical and non-technical disciplines with the key skills and concepts needed to contribute to the information security posture of their organization.

ISEC 5310 Cyber Security Human Factors: Ethics, Integrity, Practices, Policies, and Procedures (3)
Pre-requisite(s): Graduate standing
This course explores the areas of ethics and integrity to assure that the practices, policies, and procedures are in place in an organization to secure the firm's information.

ISEC 5320 Cyber Security Technology Factors (3)
Pre-requisite(s): ISEC 5305 or equivalent
This course provides a roadmap of the paths available to organizations for deploying various security devices and tools. The course goes beyond the narrow technical view and offers a full context for the deployment of security technologies. Six key areas of network security will be covered, with each section covering a tool that will play a part in a company's overall information assurance program.

ISEC 5330 Cybersecurity Policy and Planning (3)
Pre-requisite(s): Graduate standing
This course examines how the information security function is best managed from an organizational perspective. The class will cover a variety of topics to help students understand some of the best practices for how the security function should operate within the context of the overall organization.

ISEC 5340 Cyber Warfare, Threats, Vulnerabilities and Countermeasures (3)
Pre-requisite(s): Graduate standing
This course presents material relevant to understanding the various types of information security risks faced by organizations. Students are also exposed to concepts for developing a corporate security plan designed to mitigate these various information security risks and cyber-attacks.

ISEC 5405 Cyber Security Fundamentals (4)
Introduces students to the foundational aspects of cybersecurity, and how these aspects relate to the organizational and business environment. Students will be able to describe the major "domains" of cyber security and how these domains can be applied to the organization or workplace.

ISEC 5430 Enterprise Cyber Security Planning and Policy: A Strategic Approach (4)
This course examines how the enterprise cyber security function can be managed from a strategic perspective to ensure effective risk mitigation in an environment where the nature of cyber risks is continually evolving. The course focuses on the importance of treating cyber security as a strategic organizational function and provides students with tools, best practices, and security frameworks to help safeguard organizational information assets.