DEPARTMENT OF INFORMATION SYSTEMS AND BUSINESS ANALYTICS

Ambassador Crawford College of Business and Entrepreneurship
Department of Information Systems and Business Analytics
www.kent.edu/business

Undergraduate Programs

- Business Analytics - B.B.A.
- Computer Information Systems - B.B.A.

Undergraduate Minors

- Computer Information Systems

Graduate Programs

- Business Analytics - M.S.

Graduate Certificates

- Business Analytics
- Quantitative Business Management

Department of Information Systems and Business Analytics Faculty

- Akpan, Ikpe A. (2012), Professor, Ph.D., Lancaster University, 2006
- Asadi, Shahla (2023), Visiting Assistant Professor, Ph.D., University Of Technology - Malaysia, 2017
- Benitez, Jose A. (2023), Professor, Ph.D., University of Granada, 2009
- Berardi, Victor L. (1993), Associate Professor, Ph.D., Kent State University, 1998
- Brandyberry, Alan A. (2000), Professor, D.B.A., Southern Illinois University, Carbondale, 1995
- Datta, Pratim (2007), Professor, Ph.D., Louisiana State University, 2003
- Dragan, Natalia (2003), Associate Professor, Ph.D., Kent State University, 2010
- Kamali Ardakani, Mostafa (2022), Associate Professor, Ph.D., Catholic University of America, 2014
- Kwak, Dong-Heon (2014), Associate Professor, Ph.D., University of Wisconsin, Milwaukee, 2014
- Liu, Li (2023), Visiting Assistant Professor
- Offodile, Onyebuchi F. (1988), Professor, Ph.D., Texas Tech University, 1984
- Patuwo, Eddy B. (1988), Professor, Ph.D., Virginia Polytechnic Institute and State University, 1989
- Polites, Greta L. (2012), Professor, Ph.D., University of Georgia, 2009
- Razavi, Rouzbeh (2017), Associate Professor, Ph.D., University of Essex, 2008
- Uprety, Dambar (2022), Assistant Professor
- Wu, Chaojiang (2019), Associate Professor, Ph.D., University of Cincinnati, 2013

Business Analytics (BA)

BA 24056   BUSINESS ANALYTICS I   3 Credit Hours
(Equivalent to BMRT 21004) Introduction to concepts in statistical methods and their applications to real world problems. Examines both the theoretical and practical side of the different methods.
Prerequisite: MATH 11010 or MATH 11012 or MATH 12002.
Schedule Type: Laboratory, Lecture, Combined Lecture and Lab
Contact Hours: 2 lecture, 2 lab
Grade Mode: Standard Letter

BA 34055   COMPUTER DECISION MODELING   3 Credit Hours
Introduces students to the scientific decision-making tools of operations research and management science, and also to the use of spreadsheet modeling for problem formulation and solution without the need for mathematics. The concepts of modeling and better decision making are stressed along with illustrations from the various functional areas of business. Course not open to computer information systems majors.
Prerequisite: CIS 24053 or IT 11000; and BA 24056 or MATH 10041 or BMRT 21004; and minimum 2.000 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 34059   SERVICE OPERATIONS MANAGEMENT   3 Credit Hours
Provide students with the concepts and tools necessary to effectively manage service operations and to prepare students for management opportunities in service firms that represent the fastest-growing sector of the economy. The service management will be presented from an integrated viewpoint with a focus on customer satisfaction. The course materials are organized around four modules (1) understanding services (2) designing the service enterprise, (3) managing service operations and (4) toward world class-service.
Prerequisite: BA 34060; and minimum 2.000 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 34060   OPERATIONS MANAGEMENT   3 Credit Hours
A survey course in operations management that covers the managerial concepts and the quantitative tools used in the design, planning operation and control of operations systems.
Prerequisite: CIS 24053 or IT 11000; and BA 24056 or MATH 10041 or BMRT 21004.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 34064   MANUFACTURING RESOURCE PLANNING   3 Credit Hours
Introduce students to the basic tools operations managers use to inform their decisions on a daily basis. The course involves hands-on coverage of manufacturing resource planning tools, including forecasting and master production schedules, bill of materials structuring, order entry and purchasing, capacity requirements planning, routing, costing, customer service, shipping, invoicing and using an enterprise resource planning (ERP) software.
Prerequisite: BA 34060; and minimum 2.500 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 34065   QUALITY ASSURANCE   3 Credit Hours
Introduction to importance of quality assurance and tools used to accomplish better quality in goods and services. Topics TQM, Six Sigma, quality philosophies, sampling plans and statistical process control, ISO, quality competition and awards.
Prerequisite: BA 34060; and minimum 2.000 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 34156   BUSINESS ANALYTICS II   3 Credit Hours
This course provides an introduction and application of business analytics to real-world problems. Specifically, students are exposed to methods and models that allows business users to make better decisions based on data. We discuss methods for collecting, cleaning, and visualizing data, linear, non-linear and optimization models to help decision makers choose the best decision, and some advanced forms of modeling. The goal of this course is for students to be exposed to essential topics in business analytics and to apply these techniques to real-world problems.
Prerequisite: BMRT 21004 or MATH 10041 or BA 24056.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 44011   SYSTEMS SIMULATION   3 Credit Hours
(Slashed with BA 54011) Techniques and applications of computer simulation of existing or proposed real-world systems. Use of simulation language, simulations studies, analysis and interpretation of results.
Prerequisite: BA 24056 or MATH 10041.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 44038   ANALYTICS IN PRACTICE   3 Credit Hours
Course focuses on supporting techniques and managerial and professional skills necessary to being an effective business analyst. Other topics include project management, requirements analysis, change management, team dynamics, leadership, ethics and effective communication between all stakeholders.
Prerequisite: BA 34156.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 44050   DATA VISUALIZATION   3 Credit Hours
(Slashed with BA 54050) Introduces students to data visualization, and specifically, how to use visualization to communicate information effectively from data. All aspects of effective data visualization, including understanding the context, choosing appropriate graphs and visuals, and communicating the information from data will be considered. While theoretical aspects of effective visualizations will be covered, the focus will be on implementing such designs. Concentrating significantly on the practice of effective visualizations.
Prerequisite: BA 24056 or MATH 10041; and senior standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 44051   MACHINE LEARNING   3 Credit Hours
Machine Learning is one of the required courses for the Bachelor of Business Analytics (BANA) program. In this course, students learn the fundamentals of machine learning as applied to business problems. Specifically, the course concentrates on regression and classification methods, including regression, random forests, boosting trees, and neural networks, on unsupervised learning including k-means and hierarchical clustering, and on recommendation systems, and ensemble learning.
Prerequisite: BA 34156; and senior standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 44052   TEXT ANALYSIS AND NATURAL LANGUAGE PROCESSING   3 Credit Hours
(Slashed with BA 54052) Course is designed to provide students with a comprehensive understanding of how to analyze unstructured text data for actionable business insights. The course explores essential techniques in text analytics, ranging from basic Natural Language Processing (NLP) to advanced machine learning and deep learning models. The curriculum covers a variety of topics such as sentiment analysis, text classification, and feature engineering, along with cutting-edge methodologies like topic modeling and transformer models. Furthermore, the course delves into real-world applications of text analytics in various industries, including healthcare, finance and retail. Students will also examine the ethical considerations related to data privacy and bias in text analytics.
Prerequisite: BA 34156.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 44061   OPERATIONS MANAGEMENT AND CONTROL   3 Credit Hours
Introduces the student to the key functions of an operations planning and control system. Operations planning and control systems provide information for the efficient flow of materials, the effective utilization of people and equipment and the proper coordination of internal activities with suppliers and customers.
Prerequisite: Minimum 2.000 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 44062   SUPPLY CHAIN MANAGEMENT   3 Credit Hours
Students learn the basic analytical tools needed to coordinate business operations across the value chain. Course involves hands-on coverage of supply chain management with emphasis on supplier partnering and development, customer relations management, strategic sourcing and pricing, e-business, measuring supply chain performance, mass customization, planning supply and demand coordination in the supply chain.
Prerequisite: Minimum 2.000 overall GPA; and junior standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 44065   STRATEGIES IN PRODUCTION AND OPERATIONS MANAGEMENT (WIC)   3 Credit Hours
Senior project in industrial management. Applies concepts from all prior coursework to the solution of real and simulated operating problems.
Prerequisite: Minimum 2.000 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter
Attributes: Writing Intensive Course

BA 44092   INTERNSHIP IN BUSINESS ANALYTICS (ELR)   3 Credit Hours
(Repeatable for credit) A supervised field experience at a cooperating organization. Requires regular contact with instructor and preparation of an internship report connecting academic coursework to on-the-job experiences.
Prerequisite: BA 34156.
Schedule Type: Practical Experience
Contact Hours: 9 other
Grade Mode: Standard Letter
Attributes: Experiential Learning Requirement

BA 44099   CAPSTONE IN BUSINESS ANALYTICS (ELR) (WIC)   3 Credit Hours
In this culminating project, students draw on the breadth and depth of the curriculum to address an industry supplied problem individually or in small teams. Specifically, students will improve, and present their solutions to their respective stakeholders, who will grade your final presentation and report.
Prerequisite: BA 44051; and senior standing.
Pre/corequisite: BA 44050.
Schedule Type: Lecture, Project or Capstone
Contact Hours: 3 lecture
Grade Mode: Standard Letter
Attributes: Experiential Learning Requirement, Writing Intensive Course

BA 44152   PROJECT MANAGEMENT   3 Credit Hours
This course covers the fundamental concepts, procedures and processes related to managing projects from initiation through planning, execution and closing. It also introduces the principles, tools and methods used in project management, and the use of project management software (ProjectLibre) in managing projects. The topics covered in the course can be helpful in preparing for Project Management Professional (PMP) certification.
Prerequisite: Minimum 2.000 overall GPA; and junior standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 54011   SYSTEMS SIMULATION   3 Credit Hours
(Slashed with BA 44011) Techniques and applications of computer simulation of existing or proposed real-world systems. Use of simulation language, simulations studies, analysis and interpretation of results.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 54038   ANALYTICS IN PRACTICE   3 Credit Hours
Course focuses on supporting techniques and managerial and professional skills necessary to being an effective business analyst. Other topics include project management, requirements analysis, change management, team dynamics, leadership, ethics and effective communication between all stakeholders.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 54050   DATA VISUALIZATION   3 Credit Hours
(Slashed with BA 44050) Introduces students to data visualization, and specifically, how to use visualization to communicate information effectively from data. All aspects of effective data visualization, including understanding the context, choosing appropriate graphs and visuals, and communicating the information from data will be considered. While theoretical aspects of effective visualizations will be covered, the focus will be on implementing such designs. Concentrating significantly on the practice of effective visualizations.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 54052   TEXT ANALYSIS AND NATURAL LANGUAGE PROCESSING   3 Credit Hours
(Slashed with BA 44052) Course is designed to provide students with a comprehensive understanding of how to analyze unstructured text data for actionable business insights. The course explores essential techniques in text analytics, ranging from basic Natural Language Processing (NLP) to advanced machine learning and deep learning models. The curriculum covers a variety of topics such as sentiment analysis, text classification, and feature engineering, along with cutting-edge methodologies like topic modeling and transformer models. Furthermore, the course delves into real-world applications of text analytics in various industries, including healthcare, finance and retail. Students will also examine the ethical considerations related to data privacy and bias in text analytics.
Prerequisite: Graduate Standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64005   ANALYTICS FOR DECISION MAKING   2 Credit Hours
(Slashed with BA 74005) This course uses computer capabilities to analyze and understand a variety of statistical and business analytics techniques and how to apply these techniques to solving business problems.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 2 lecture
Grade Mode: Standard Letter

BA 64013   NONPARAMETRIC AND ROBUST STATISTICS   3 Credit Hours
(Slashed with BA 74013) A presentation of statistically sound techniques for those who need to be able to use nonparametric or robust methods to deal with non-normal distributions or outliers (common problems) in their data.
Prerequisite: BA 64005 or BA 74005; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64017   MULTIVARIATE STATISTICS   3 Credit Hours
This course is devoted to a study of multivariate statistical methods. Topics include multivariate analysis of variance, canonical correlation, principal component analysis, discriminant analysis cluster analysis and factor analysis.
Prerequisite: BA 64023 or BA 74023; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64018   QUANTITATIVE MANAGEMENT MODELING   3 Credit Hours
(Slashed with BA 74018) A variety of optimization and heuristic modeling techniques are explored. Decision-making environments, model selection, and interpretation are emphasized. Various linear and nonlinear mathematical programming techniques are the primary topic but are supplemented with other optimization and heuristic techniques.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64019   RESEARCH SEMINAR IN SUPPLY CHAIN MANAGEMENT   3 Credit Hours
(Slashed with BA 74019) Research seminar designed primarily for students who seek an in-depth understanding of the current research literature in supply chain management and who are interested in doing research in supply chain management. Students study the academic literature with emphasis on the development and use of analytical tools and models to solve supply chain management problems. Specifically, the course will address quantitative modeling to support operational, tactical and strategic decision-making in supply chain management.
Prerequisite: Graduate standing.
Schedule Type: Seminar
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64020   ADVANCED STATISTICAL MODELS   3 Credit Hours
(Slashed with BA 74020) This is a special focus course for which the topics will vary. It will generally include sampling techniques, experimental designs, similar statistical methods, internal and external validity and reliability issues.
Prerequisite: BA 64023 or BA 74023; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64023   LINEAR STATISTICAL MODELS AND APPLICATIONS   3 Credit Hours
(Slashed with BA 74023) Models and applications of simple and multiple regression, correlation and analysis of variance.
Prerequisite: BA 64005 or BA 74005; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64026   SUPPLY CHAIN MANAGEMENT   2 Credit Hours
Introduces the knowledge base needed to coordinate business operations across firms' supply chains. Addresses how to integrate traditional business operations to align them in support of inter-firm collaboration required to compete globally. It covers specific topics relevant to supply chain management and offers a managerial orientation towards supporting supply chain operations. It immerses students into responsible operations and supply chain best practices.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 2 lecture
Grade Mode: Standard Letter

BA 64028   GLOBAL SUPPLY CHAIN BUSINESS MODELS   3 Credit Hours
Focus on modeling techniques for supporting decision making in supply chain management. Introduces students to the problems facing a global supply chain manager and the implementation of spreadsheet-based models for solving problems that arise in the operation of a supply chain. Emphasis is placed on model formulation and interpretation in support of decisions to coordinate and improve supply chain operations.
Prerequisite: BA 64026 or BA 64036; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64029   SUPPLY CHAIN AND VENDOR MANAGEMENT STRATEGIES   3 Credit Hours
Building global "relationships" are central pillars to effective supply chain management. There are strategic relationships, tactical relationships, transactional relationships, internal relationships, and of course, relationships with the government. As supply chains become global, managers have to consider cultural, regulatory, and communication differences to create and operate within the global village. Students learn how to deal with a rapidly changing landscape and understand how to deal with distributed resources, vendors, and people across cultures and convictions.
Prerequisite: BA 64026; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64036   BUSINESS ANALYTICS   3 Credit Hours
Overview of business analytics and its appropriate applications in various industries and functional areas. Critical thinking, problem definition, problem solving, effective communication, and leadership are emphasized. Methods such as data visualization and descriptive, predictive, and prescriptive analytics are covered from a broad perspective. This course is applied, hands-on, and case-based. Cases emphasize the communication of quantitative solutions to laypeople and required leadership during decision-making and implementation stages.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64037   ADVANCED DATA MINING AND PREDICTIVE ANALYTICS   3 Credit Hours
Course extends the coverage of data mining and predictive analytics. Topics focus on the applied use of these techniques in realistic settings. Covers statistical and machine learning techniques.
Prerequisite: BA 64036 or BA 64060; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64041   OPERATIONS, SERVICE AND SUPPLY CHAIN MANAGEMENT   2 Credit Hours
Develops a framework for analysis of operating problems. Uses computer, quantitative and behavioral models to develop operating plans consistent with organizations' competitive (or service) strategy.
Prerequisite: BA 64005; and graduate standing.
Schedule Type: Lecture
Contact Hours: 2 lecture
Grade Mode: Standard Letter

BA 64047   MANUFACTURING TECHNOLOGY AND STRATEGY   3 Credit Hours
(Slashed with BA 74047) This course provides the student with an introduction to modern techniques in manufacturing and the necessary strategic concepts to implement them. A similar discussion of service industries is also included.
Prerequisite: Graduate standing; and special approval of instructor.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64060   FUNDAMENTALS OF MACHINE LEARNING   3 Credit Hours
In this course, students learn fundamentals of machine learning. Specifically, concentrating on classification modelling, segmentation and clustering and recommendation systems.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64061   ADVANCED MACHINE LEARNING   3 Credit Hours
Introduction to deep learning and time series data analysis. Students consider applications of deep learning to computer vision, text analysis and sequences, and time series data.
Prerequisite: BA 64060; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64082   DATABASE MANAGEMENT AND DATABASE ANALYTICS   3 Credit Hours
(Slashed with BA 74082) The design, implementation and management of database management systems within organizations are studied from an applied perspective. Additional emphases include data warehousing, structured query language for analytics and introductions to NoSQL databases and big data analytics.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 64092   INTERNSHIP IN BUSINESS ANALYTICS   3 Credit Hours
(Repeatable for credit) A supervised field experience at a cooperating organization. Requires regular contact with instructor and preparation of an internship report connecting academic coursework to on-the-job experiences.
Prerequisite: Graduate standing.
Schedule Type: Practical Experience
Contact Hours: 9 other
Grade Mode: Standard Letter

BA 64099   CAPSTONE PROJECT IN BUSINESS ANALYTICS   3 Credit Hours
(Repeatable for credit) In this culminating project, students draw on the breadth and depth of the curriculum to address an industry supplied problem individually or in small teams. Projects will explore prescriptive analytics as is appropriate to their design project.
Prerequisite: BA 64036 or BA 64060; and graduate standing.
Schedule Type: Project or Capstone
Contact Hours: 3 other
Grade Mode: Standard Letter-IP

BA 74005   STATISTICS FOR MANAGEMENT I   3 Credit Hours
(Slashed with BA 64005) This course uses computer capabilities to use and understand a variety of statistical techniques and applies these techniques to business problems.
Prerequisite: Admission to MBA program; and doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74013   NONPARAMETRIC AND ROBUST STATISTICS   3 Credit Hours
(Slashed with BA 64013) A presentation of statistically sound techniques for those who need to be able to use nonparametric or robust methods to deal with non-normal distributions or outliers (common problems) in their data.
Prerequisite: BA 64005 or BA 74005; and doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74017   MULTIVARIATE STATISTICS   3 Credit Hours
(Slashed with BA 64017) This course is devoted to a study of multivariate statistical methods. Topics include multivariate analysis of variance, canonical correlation, principal component analysis, discriminant analysis, cluster analysis and factor analysis.
Prerequisite: BA 64023 or BA 74023; and doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74018   QUANTITATIVE MANAGEMENT MODELING   3 Credit Hours
(Slashed with BA 64018) A variety of optimization and heuristic modeling techniques are explored. Decision-making environments, model selection, and interpretation are emphasized. Various linear and nonlinear mathematical programming techniques are the primary topic but are supplemented with other optimization and heuristic techniques.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74019   RESEARCH SEMINAR IN SUPPLY CHAIN MANAGEMENT   3 Credit Hours
(Slashed with BA 64019) Research seminar designed primarily for students who seek an in-depth understanding of the current research literature in supply chain management and who are interested in doing research in supply chain management. Students study the academic literature with emphasis on the development and use of analytical tools and models to solve supply chain management problems. Specifically, the course will address quantitative modeling to support operational, tactical and strategic decision-making in supply chain management.
Prerequisite: Doctoral standing.
Schedule Type: Seminar
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74020   ADVANCED STATISTICAL MODELS   3 Credit Hours
(Slashed with BA 64020) This is a special focus course for which the topics will vary. It will generally include sampling techniques, experimental designs, similar statistical methods, internal and external validity, and reliability issues.
Prerequisite: BA 64023 or BA 74023; and doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74023   LINEAR STATISTICAL MODELS AND APPLICATIONS   3 Credit Hours
(Slashed with BA 64023) Models and applications of simple and multiple regression, correlation and analysis of variance.
Prerequisite: BA 64005 or BA 74005; and doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74037   ADVANCED DATA MINING AND PREDICTIVE ANALYTICS   3 Credit Hours
(Slashed with BA 64037) Course extends the coverage of data mining and predictive analytics. Topics focus on the applied use of these techniques in realistic settings. Covers statistical and machine learning techniques.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74041   OPERATIONS MANAGEMENT   3 Credit Hours
Develops a framework for analysis of operating problems. Uses computer quantitative and behavioral models to develop operating plans consistent with organizations' competitive (or service) strategy.
Prerequisite: BA 64005 or BA 74005; and doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74047   MANUFACTURING TECHNOLOGY AND STRATEGY   3 Credit Hours
(Slashed with BA 64047) This course provides the student with an introduction to modern techniques in manufacturing and the necessary strategic concepts to implement them. A similar discussion of service industries is also included.
Prerequisite: Doctoral standing; and special approval of instructor.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74061   ADVANCED MACHINE LEARNING   3 Credit Hours
(Slashed with BA 64061) Introduction to deep learning and time series data analysis. Students consider applications of deep learning to computer vision, text analysis and sequences and time series data.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 74082   DATABASE MANAGEMENT AND DATABASE ANALYTICS   3 Credit Hours
(Slashed with BA 64082) The design, implementation and management of database management systems within organizations are studied from an applied perspective. Additional emphases include data warehousing, structured query language for analytics and introductions to NoSQL databases and big data analytics.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 84011   SYSTEMS SIMULATION   3 Credit Hours
Techniques and applications of computer simulation of existing or proposed real-world systems. Use of simulation language, simulation studies, analysis of interpretation and of results.
Prerequisite: Doctoral standing; and special approval.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 84012   SCHEDULING AND PLANNING   3 Credit Hours
Course is a doctoral seminar on scheduling and planning models that are used in operations and production management. The goal is to expose students to a portfolio of scheduling and planning models to stimulate research ideas in scheduling and planning models that will lead to the development of a research program for your doctoral research.
Prerequisite: Doctoral standing in the Ambassador Crawford College of Business and Entrepreneurship.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 84015   STOCHASTIC MODELS   3 Credit Hours
Mathematical modeling of systems involving one or more random variables, and stochastic processes: basic probability theory; Poisson process, Markov chain and Markov process with applications to production, inventory, reliability and queuing systems.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 84023   LINEAR STATISTICAL MODELS   3 Credit Hours
Linear statistical models for regression and analysis of variance.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

BA 84047   VALUE AND SUPPLY CHAIN MANAGEMENT   3 Credit Hours
This course is a doctoral seminar for students who seek an in-depth understanding of the current research literature in supply chain management. The seminar is designed into three modules. The first module covers the conceptual foundation for understanding value and supply chains from an interdisciplinary perspective. The second module focuses on the basis of supply chain modeling using optimization and simulation. The third module serves to integrate the previous modules with the objective of the student producing a research paper for journal submission.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

Computer Information Systems (CIS)

CIS 24053   INTRODUCTION TO INFORMATION SYSTEMS AND DIGITAL TECHNOLOGIES   3 Credit Hours
(Equivalent to IT 11000) This foundational course introduces students to hands-on application of contemporary information systems and digital technologies. From personal devices to cloud infrastructure and traditional office applications to cloud and enterprise systems. Students learn important concepts and theories and begin building their inventory of technical skills to solve problems for immediate application, to earn industry-valued certifications and to prepare for advanced coursework.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter
Attributes: TAG Business

CIS 24065   WEB PROGRAMMING   3 Credit Hours
Principles of visual design as applied to Web site interface development. The course exposes students to the basics of programming and relational database and how to develop a Web-based database driven interactive information system.
Prerequisite: CIS 24053.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 24093   VARIABLE TITLE WORKSHOP IN MANAGEMENT AND INFORMATION SYSTEMS   1-6 Credit Hours
(Repeatable for credit) Special workshop in management and information systems. Credits depend on scope of project.
Prerequisite: Special approval.
Schedule Type: Workshop
Contact Hours: 1-6 other
Grade Mode: Satisfactory/Unsatisfactory

CIS 24167   CLOUD INFRASTRUCTURE AND APPLICATIONS   3 Credit Hours
Information systems is critical to the efficient operation of any organization today, such as in hiring employees, performing background checks, ordering/creating products, transacting businesses, and providing follow-up services, among others. These can be large "integrated systems" or ERPs or loose collection of "Apps." This class explores the various alternatives available today and the likely future of new products in the future. Different viewpoints and debates will be explored in the class with opportunities for students to discuss and present their thoughts.
Prerequisite: Minimum C+ grade in CIS 24053; and minimum 2.250 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 34032   DATA AND FILE TECHNOLOGY   3 Credit Hours
An introduction to file architecture and data base management systems. The application of these technologies is detailed.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 34034   BUSINESS MODELING AND AGILE DESIGN   3 Credit Hours
Introduction to innovative modeling and reengineering methods, tools, and techniques such as Agile and SCRUM methods to analyze real-world business problems and offer solutions using existing and emerging digital technologies such as artificial intelligence, smart devices (Internet of Things), cybersecurity and the metaverse/augmented reality/eXtensible reality.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 34045   SMALL SYSTEMS TECHNOLOGY   3 Credit Hours
An examination of the role of small computer systems within an organization's information systems environment.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 34054   USING INFORMATION SYSTEMS AND DIGITAL TECHNOLOGIES FOR SOLVING BUSINESS PROBLEMS   3 Credit Hours
Digital technologies are dramatically changing businesses and societies. Students will learn about how information systems (IS) are impacting various facets of business and society. Students will also learn about emerging digital technologies such as artificial intelligence, business data analytics, cryptocurrencies and FinTechs, smart devices, cybersecurity, and digital transformation with hands-on assignments related to building and delivering digital innovations for business and society.
Prerequisite: CIS 24053 or IT 11000; and minimum 2.000 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 34167   DESIGNING INNOVATIVE PROGRAMS AND APPS   3 Credit Hours
Course on front-end (client-side or user) design exposes students to the process of interface design, starting with the development of mobile-first interface prototypes using techniques such as wireframing and fun coding with HTML, CSS, JavaScript and JQuery. This course may offer certification opportunities.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44008   MANAGING AGILE DIGITAL TRANSFORMATION PROJECTS   3 Credit Hours
(Slashed with CIS 54008) Drawn on the modern foundations of software development, this course will offer an overview and hands-on experience of the agile methodologies and techniques (e.g., Scrum, extreme programming) to support the agile implementation of digital transformation projects/strategies in organizations.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44040   DESIGNING INNOVATIVE SERVER-SIDE SYSTEMS   3 Credit Hours
Course, on back-end (server-side) design, exposes students to the process of linking the front-end client interfaces to work with powerful servers that perform the magic in the background. Students will be exposed to topics such as server-side and serverless computing, and will use modern web languages such as but not limited to Python, NodeJS, Angular, React and Vue.
Prerequisite: CIS 34167.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44041   MANAGING CYBERSECURITY   3 Credit Hours
(Slashed with CIS 54041) Course explores digital technologies and business issues related to cybersecurity management. It offers the foundations to understand the cybersecurity threats and privacy risks embedded in the implementation of emerging digital technologies (e.g., artificial intelligence, smart devices, collaborative tools) and the execution of digital transformation projects/strategies. The course will also facilitate the development of technological skills to design, implement, and evaluate cybersecurity policies in organizations. The course offers certification opportunities.
Prerequisite: CIS 24053 and CIS 34054 with a minimum C+ grade.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44042   NETWORK THEORY AND APPLICATIONS   3 Credit Hours
Presentation of current and emerging network technologies and services in business applications and performance issues. Topics include transmission media, modulation and signaling schemes, switching and multiplexing techniques, local and wide area network protocols and standards, and internetworking devices.
Prerequisite: Minimum C+ grade in CIS 24053 and C grade in CIS 24065; and minimum overall 2.250 GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44043   DATABASE DESIGN AND DATA GOVERNANCE   3 Credit Hours
Databases provide the fundamental foundation for modern IT applications. Students will learn the basics of database design by working with relational SQL and NoSQL databases in a hands-on environment. Students will also learn to integrate data governance fundamentals into their database designs.
Prerequisite: CIS 34167.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44046   HOW TO LEAD AND MANAGE DIGITAL TRANSFORMATION   3 Credit Hours
(Slashed with CIS 54046) Course will cover some of the latest trends and future predictions for business value creation from digital technology investments in companies. This course has two key objectives. First, it will provide students with the theoretical foundations and techie-savvy managerial skills to create business value from their digital technology investments. Second, it will examine the digital technology selection, usage, exploitation and growth for different purposes (e.g., transformation, innovation and getting a competitive advantage). The course offers certification opportunities.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44048   BUILDING SOLUTIONS FOR BUSINESSES (ELR) (WIC)   3 Credit Hours
Just like in industry, students will learn to work together in teams composed of information systems (IS) managers and IS designers to develop fully workable innovative projects (using existing and emerging technologies such as AI, smart devices (IoTs), cybersecurity and XR (eXtensible reality) for a real client. Students will use their diverse knowledge and previous learning as well as articulate their IT-based business solutions for business via "writing-intensive" industry-white papers and client-facing presentations, with regular instructor guidance and feedback.
Prerequisite: Minimum 2.250 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter
Attributes: Experiential Learning Requirement, Writing Intensive Course

CIS 44093   VARIABLE TITLE WORKSHOP IN MANAGEMENT AND INFORMATION SYSTEMS   1-6 Credit Hours
(Repeatable for credit) Variable title workshop courses offered under Computer Information Systems.
Prerequisite: Minimum 2.25 overall GPA.
Schedule Type: Workshop
Contact Hours: 1-6 other
Grade Mode: Satisfactory/Unsatisfactory

CIS 44095   SPECIAL TOPICS IN COMPUTER INFORMATION SYSTEMS   3 Credit Hours
(Repeatable for credit) Offered on a semester basis with different CIS topics and different faculty involved each time the course if offered.
Prerequisite: Minimum 2.250 overall GPA; and junior standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44151   INNOVATING WITH DIGITAL TECHNOLOGIES AND ARTIFICIAL INTELLIGENCE   3 Credit Hours
Students, in teams, will learn how to build agile and fast prototypes using "low-code, no-code" programming, artificial intelligence, Microsoft Power BI, and Microsoft Power Automate to digitally convert and create digital-first workflows and AI-based solutions with emphasis on requirements engineering and feasibility planning.
Prerequisite: None.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 44292   BUSINESS EXPERIENCE AND INTERNSHIP (ELR)   3 Credit Hours
(Repeatable for credit) Learning by experience and practice in an IT related company. The course exposes students to the various areas and activities related to the information systems profession in a cooperating organization.
Prerequisite: Minimum C+ grade in CIS 24053; and minimum 2.250 overall GPA.
Schedule Type: Practical Experience
Contact Hours: 9 other
Grade Mode: Standard Letter
Attributes: Experiential Learning Requirement

CIS 44293   WORKSHOP IN PROFESSIONAL INFORMATION SYSTEMS CERTIFICATION   3 Credit Hours
(Repeatable for Credit) Supervised workshop designed to help students pass at least one VMware, Microsoft or other vendors' professional certification credentials. The student chooses the exam to take, with the course providing a supported self-study opportunity to prepare for the exam.
Prerequisite: Minimum C+ grade in CIS 24053; and minimum 2.250 overall GPA.
Schedule Type: Workshop
Contact Hours: 3 other
Grade Mode: Standard Letter

CIS 44295   SPECIAL TOPICS IN INFORMATION SYSTEMS   3 Credit Hours
(Repeatable for credit) Special topics course on newest advances in information systems technology and how they support business activities. New and emerging topics in information systems are presented in an experimental way, with the content of the course changing from one offering to the other.
Prerequisite: Minimum C+ grade in CIS 24053; and minimum 2.250 overall GPA.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 54008   MANAGING AGILE DIGITAL TRANSFORMATION PROJECTS   3 Credit Hours
(Slashed with CIS 44008) Drawn on the modern foundations of software development, this course will offer an overview and hands-on experience of the agile methodologies and techniques (e.g., Scrum, extreme programming) to support the agile implementation of digital transformation projects/strategies in organizations.
Prerequisite: Graduate standing; or special approval of instructor.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 54041   MANAGING CYBERSECURITY   3 Credit Hours
(Slashed with CIS 44041) Course explores digital technologies and business issues related to cybersecurity management. It offers the foundations to understand the cybersecurity threats and privacy risks embedded in the implementation of emerging digital technologies (e.g., artificial intelligence, smart devices, collaborative tools) and the execution of digital transformation projects/strategies. The course will also facilitate the development of technological skills to design, implement, and evaluate cybersecurity policies in organizations. The course offers certification opportunities.
Prerequisite: Admission to MBA or MSBA program; and graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 54046   HOW TO LEAD AND MANAGE DIGITAL TRANSFORMATION   3 Credit Hours
Course will cover some of the latest trends and future predictions for business value creation from digital technology investments in companies. This course has two key objectives. First, it will provide students with the theoretical foundations and techie-savvy managerial skills to create business value from their digital technology investments. Second, it will examine the digital technology selection, usage, exploitation and growth for different purposes (e.g., transformation, innovation, and getting a competitive advantage). The course offers certification opportunities.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 64042   GLOBALIZATION AND TECHNOLOGY STRATEGY   2 Credit Hours
This course is designed for anyone dealing with technology in a globalized economy. Technology is pervasive in today's globalized world. Given that technology is central to every business operation, learning to manage technology in a global context is crucial. This course uses technology management as the central cog that impacts multiple business and social facets, including digital transformation, cybersecurity, international operations, sustainability, marketing, finance, culture, human capital and the political economy.
Prerequisite: Graduate standing.
Schedule Type: Lecture
Contact Hours: 2 lecture
Grade Mode: Standard Letter

CIS 74042   GLOBALIZATION AND TECHNOLOGY STRATEGY   3 Credit Hours
Focus is on the strategic issues around how a firm should manage its technology in a global market. Strategic issues include understanding the technological and competitive landscape, innovations, competitive advantages in the high-tech marketplace, outsourcing and information ethics. The core emphasis in on integrated decision-making in the age of globalization.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 74080   EMERGING HARDWARE AND SOFTWARE TECHNOLOGIES   3 Credit Hours
(Slashed with CIS 64080) Investigation of selected emerging hardware and software technologies such as parallel processing systems, computer languages and operation systems, artificial intelligence, neural networks and chaos theory.
Prerequisite: Doctoral standing; and special approval of instructor.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 74081   DATA COMMUNICATIONS AND NETWORKING IN BUSINESS   3 Credit Hours
An introduction to telecommunications and computer networks. Topics include telecommunications technologies and services, communication standards and protocols, local area networks and network management.
Prerequisite: Doctoral standing; and special approval of instructor.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 84007   PHILOSOPHY OF SCIENCE AND BUSINESS MODELS   3 Credit Hours
Introductory seminar for understanding the forms and the process of business research. Its major objective is to help seminar participants understand the various philosophies that drive business research in an academic community, and introductory methods of social science research. Additionally, the seminar seeks to develop participant motivation to become a contributor to the organizational sciences communities by examining the research process, methodologies and strategies, research paradigms, modes and contexts of Inquiry, the nature of organizational sciences research, the major streams of business research, understanding ontological choice of constructs and defining epistemic relationships between constructs, building hypotheses and socio-technical models, research design, data requirements and collection techniques and ethics and philosophies.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 84045   SOCIAL ISSUES IN INFORMATION SYSTEMS   3 Credit Hours
Social issues in information systems arise at the interface between information systems and individuals, groups and society. The course will begin with a broad exposure to current social issues, moving to an examination of specific issues in detail with issues chosen by student interest and instructor consent.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 84080   INNOVATION, ADOPTION, DIFFUSION   3 Credit Hours
Provides students with theoretical foundations of adoption and diffusion of technological innovations in organizations and society. Topics include: determinants of organizational innovation by acquisition, individual- and organizational-level technology adoption, diffusion of technologies through social systems and the infusion and assimilation of technologies in organizations.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 84081   INFORMATION SYSTEMS STRATEGY AND INNOVATION   3 Credit Hours
This course explores the basis of strategy, deployment and competition in high- technology industries. It introduces conceptual frameworks based on cutting-edge research in economics and strategy. The frameworks may seem abstract at first, but we will focus on mastering them will gain an in-depth understanding of how high-technology industries work and how to develop strategies for managing firms in such industries. Students will learn how to develop and apply such frameworks in their research.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 84082   DATABASE MANAGEMENT SYSTEMS   3 Credit Hours
In-depth investigation of intelligent database management systems in support of business decision- making. An understanding of relational databases is assumed. Object-orientation and other advanced database concepts will be explored.
Prerequisite: Doctoral standing.
Schedule Type: Lecture
Contact Hours: 3 lecture
Grade Mode: Standard Letter

CIS 84095   SPECIAL TOPICS IN INFORMATION SYSTEMS RESEARCH   3 Credit Hours
(Repeatable for credit) Variable content of relevance to IS research. Exact topics will be announced when scheduled.
Prerequisite: Doctoral standing.
Schedule Type: Colloquium, Seminar
Contact Hours: 3 lecture
Grade Mode: Standard Letter