

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
- 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
- Shanker, Murali S. (1990), Professor, Ph.D., University of Minnesota-Twin Cities, 1990
- 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 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 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 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 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 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 GLOBAL SUPPLY CHAIN MANAGEMENT AND SUSTAINABLE STRATEGIES 3 Credit Hours

Introduces the knowledge base needed to coordinate business operations across global supply chains. Addresses how to integrate traditional business operations so as to align them in support of inter-firm collaboration required to compete globally. Investigates specific topics relevant to supply chain management and offers a managerial orientation towards supporting global supply chain operations. Immerses students into responsible supply chain practices around the globe with strong emphasis and orientation towards sustainable (green) supply chains.

Prerequisite: Graduate standing.

Schedule Type: Lecture

Contact Hours: 3 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 64038 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 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 COMPUTER APPLICATIONS 3 Credit Hours

(Equivalent to IT 11000) Develop competency in the operation of contemporary software and hardware applications. To develop an appreciation for the contribution of computers, software and the Internet to society.

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 24165 CLOUD SYSTEMS COMPUTING 3 Credit Hours

This course explores the history, current state, and projected future of cloud approach to providing computing resources. Almost all new startups today use "the cloud" because it allows fast time to market, flexibility, and the ability to "test" new ideas and product offerings very quickly. Kent State even uses this approach for things like student email and Blackboard. Most existing companies realize the "cloud" is in their future; the goal of the course is to expose students to the knowledge they need to be able to help their future employers with cloud migration.

Prerequisite: Minimum C+ grade in CIS 24053.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

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 methods, tools, and techniques used to analyze and develop information systems, with emphasis on application of methods and concepts to real-world problems. The course is the cornerstone upon which all subsequent IS activities are based. Skills developed in the course would have immediate applicability for IS students and help non-IS students gain knowledge they need to appreciate the role of IS in their organization, so they can better understand how to manage and support IS-related projects.

Prerequisite: Minimum 2.250 overall GPA.

Pre/corequisite: CIS 24167.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 34036 ENTERPRISE SYSTEMS AND BUSINESS PROCESSES 3 Credit Hours

Overview of the basics of business processes and Enterprise Resource Planning systems solutions in the cloud. The course prepares students for business process and other cloud related courses, with hands-on experience with a professional ERP system such as SAP. Topics covered include data navigation, client server systems, virtualization, database, security, accounting and procurement processes, and ERP simulation games.

Prerequisite: CIS 34034; and minimum 2.250 overall GPA.

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 FOR SOLVING BUSINESS PROBLEMS 3 Credit Hours

Course examines key concepts about information systems that are relevant for business managers. Students will complete hands-on assignments. Course is not open to students in the Computer Information Systems major.

Prerequisite: CIS 24053 or IT 11000; and minimum 2.000 overall GPA.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 34080 COMPUTER PROGRAMMING FOR BUSINESS I 3 Credit Hours

Introduces a programming language currently used in business and industry for data processing, decision making and other information systems applications.

Prerequisite: None.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 34167 CREATING INTUITIVE SYSTEMS 3 Credit Hours

The process of creating products that are intuitive, simple, useful and easy-to-use is difficult and always evolving. However, organizations such as Apple Incorporated and Google that can adopt this approach to product or service development are often on top of their industry. This course will explore this process, its value and how to make it work to help a business prosper and thrive in today's highly competitive market and short product lifecycles.

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 34191 TECHNOLOGY BOOTCAMP 3 Credit Hours

(Repeatable for credit) The course covers important current topics and innovations in information system technologies. Students are taught to develop skills that help them to identify and investigate emerging important technologies and learn how to research and master them. Topics covered each semester will be different from those covered in past semesters, with examples of what were covered in the past.

Prerequisite: Minimum C+ grade in CIS 24053; and minimum 2.250 overall GPA.

Schedule Type: Seminar

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 44007 PROJECT MANAGEMENT AND TEAM DYNAMICS 3 Credit Hours

Overview and hands-on experience of the principles, tools, and techniques of project management with emphasis on practical aspects of initiating, planning, executing, costing and closing out information systems related projects. The course begins with the Myers-Briggs personality inventory which will help in later class team exercises and uses the PMBOK. Students will work in teams to perform exercises that will help them learn team dynamics and leadership.

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 44040 PROGRAMMING FOR THE CLOUD 3 Credit Hours

Cloud development programming course that is based on the client-server architecture. The course begins with a review of HTML and CSS used to build the user interface. Document Object Model (DOM) is investigated as the basis for all web interfaces. Interface stylistic formatting is achieved by use of CSS, and JavaScript for interface in the web browser, while server-based language such as PHP and Python are used to process user actions. The course also introduces jQuery for interface animation.

Prerequisite: CIS 24165; and minimum 2.250 overall GPA.

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 DATA MANAGEMENT AND BUSINESS INTELLIGENCE I 3 Credit Hours

The processing, storage, retrieval, manipulation, and management of often massive and complex business data is an essential part of most information systems. This course will expose students to key database concepts such data integrity, conceptual and logical data modeling, and structured query language (SQL). Some of the SQL skills include data definition language (DDL), data manipulation language (DML), transaction control concepts, joins, grouping, and subqueries. The course will also introduce database management concepts related to managing users and physical storage space. Current and future database trends and issues will also be discussed including security, introduction to emerging topics in big data, data acquisition, analytics and visualization.

Prerequisite: CIS 44040; and minimum 2.250 overall GPA.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 44044 SYSTEMS ANALYSIS II 3 Credit Hours

Physical system implementation: mapping logical data models and process models to physical data bases and system design; system coding, testing, installation, conversion, training and automated tools.

Prerequisite: None.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 44045 INFORMATION SYSTEMS MANAGEMENT 3 Credit Hours

Management of information systems resources in organizations of all types and sizes; IT best practices; the effective and efficient use of IS in support of the organization's mission and to achieve competitive advantage in today's global economy; the impact of IT on enterprises, users, customers, society and the environment.

Prerequisite: CIS 24053 with a minimum C grade; and CIS 24065; minimum overall 2.250 GPA; and senior standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 44048 CLOUD SYSTEMS INTEGRATION (ELR) (WIC) 3 Credit Hours

As a writing intensive course the primary objective is that students or team of students write and rewrite their reports to consistently produce high quality, clear, and to the point written and verbal communication with feedback from their instructor. Students participate as a member of a project development team that builds cloud-based information system using a cloud platform for a real client. To be completed successfully, the projects often require knowledge, content and skills from all prior IS courses.

Prerequisite: Minimum 2.250 overall GPA.

Pre/corequisite: CIS 44043.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

Attributes: Experiential Learning Requirement, Writing Intensive Course

CIS 44049 NETWORK MANAGEMENT AND CYBERSECURITY 3 Credit Hours

The course explores technologies and business issues related to computer networking and security, with emphasis on the protocols in modern business networking such as Ethernet and TCP-IP. Topics also include cybersecurity threats and defenses, privacy, cloud and parallel computing, and map-reduce.

Prerequisite: Minimum C+ grade in CIS 24053 and minimum C grade in CIS 24065; and minimum 2.250 overall GPA.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

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 is offered.

Prerequisite: Minimum 2.250 overall GPA; and junior standing.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 44140 APPLICATION DESIGN AND DEVELOPMENT 3 Credit Hours

The focus of this course is about making apps for mobile and other devices. Techniques that permit apps to be developed and then used as native on Android and iOS platforms are covered, with emphasis on interface design, client programming, server programming, database use for storage and retrieval, and security. The Model-View-Controller (MVC) architecture is used as the basis for app development, including interface, programming and data management.

Prerequisite: CIS 44040; and minimum 2.250 overall GPA.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 44243 DATA MANAGEMENT AND BUSINESS INTELLIGENCE II 3 Credit Hours

The course explores advanced topics in the acquisition, management and use of data. The knowledge and skills presented in Data Management and Business Intelligence I, big data, data acquisition, analytics and visualization are extended with an emphasis on machine learning, artificial intelligence, and NoSQL. There is also an introduction to blockchain concept using software platforms.

Prerequisite: CIS 44043; and minimum 2.250 overall GPA.

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 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 64080 EMERGING HARDWARE AND SOFTWARE TECHNOLOGIES 3 Credit Hours

(Slashed with CIS 74080) 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: Graduate standing; and special approval of instructor.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 64081 DATA COMMUNICATIONS AND NETWORKING IN BUSINESS 3 Credit Hours

(CIS 74081) An introduction to telecommunications and computer networks. Topics include telecommunications technologies and services communication standards and protocols local area networks and network management.

Prerequisite: Graduate standing; and special approval of instructor.

Schedule Type: Lecture

Contact Hours: 3 lecture

Grade Mode: Standard Letter

CIS 64083 INFORMATION SECURITY: A MANAGERIAL PERSPECTIVE 3 Credit Hours

Introduction to the information security areas that managers must understand in order to deal with today's security threat-laden environment. The emphasis is on the important principals and concepts that managers utilize to develop effective security risk management programs.

Prerequisite: Admission to MBA program or admission to MS IAKM program; and graduate standing.

Schedule Type: Lecture

Contact Hours: 3 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 is 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