INFORMATION & DECISION SCIENCE (INFO)

INFO 173 Spreadsheet Modeling for Business Decisions (3 credits)
This course emphasizes the development of Microsoft Excel skills and applications. In addition to basic skill building strong emphasis will be placed on business problem analysis and solution development through spreadsheet modeling. Students will also develop skill in presenting models in visual, written, and oral form. Meets Gen Ed - Computer Science.

INFO 210 Database Systems (3 credits)
Prerequisite(s): INFO 290; or ACCT 309 for Accounting majors. Restriction(s): Business Administration Majors, Business Analytics Majors, or Business Analytics Minors only. This course provides students an overview of the development, applications and management of database systems in business. Students are given a series of hands-on exercises and projects to practice skills in data analysis, database design, database queries and applications. This course also introduces concepts of database administration and Web based database applications. Equivalent course INFO 310 effective through Summer 2023.

INFO 230 Introduction to Business Co-Op Work Exp (3-6 credits)
Restriction(s): Sophomore level status (45+ semester hours completed) with a 2.25 minimum grade point average; Business Administration major. This is an introductory cooperative education course which integrates formal classroom study and assignments with a supervised full-time or part-time off-campus employment experience. The purpose of this course is to develop self-awareness and to explore educational and occupational alternatives.

INFO 240 Statistical Methods in Business (3 credits)
Prerequisite(s): MATH 100 or Placement Through MSU Placement Test. This course is a comprehensive introduction to the application of modern statistical methods used in enumerative and analytic studies in business. Topics covered include: use of percentages, proportions, rates, ratios and indices; descriptive statistical methods of data analysis; probability; an introduction to discrete and continuous probability distributions; the normal distribution; classical statistical inference - sampling distributions, confidence interval estimation and hypothesis testing for the mean and the proportion and for differences in two means and differences in two proportions; an introduction to control charts. Spreadsheet software is integrated in all topics. Special fee. Meets Gen Ed - Mathematics.

INFO 257 Programming for Business (3 credits)
Prerequisite(s): INFO 240. Restriction(s): Business Administration Majors, Business Analytics Majors, or Business Analytics Minors only. This course enhances students' ability to use computer programming to solve business problems. Students are introduced to the concepts of object-oriented programming in business applications. This course teaches programming from the data analysis perspective by focusing on topics such as feature extraction, missing data imputation, exploratory data analysis, and statistical analysis. The course uses current programming languages, such as R or Python. Specific emphasis is placed on creation and transformation features in addition to cleaning, summarizing, organizing, and visualizing datasets. Students will develop analytical skills, learn to code in a programming language, and understand how to extract insights for data-driven business decision-making. Equivalent course INFO 357 effective through Summer 2023.

INFO 265 Foundations of Business Analytics and Artificial Intelligence (3 credits)
Prerequisite(s): INFO 240. Restriction(s): Business Administration Majors, Business Analytics Majors, or Business Analytics Minors only. This is the first course in the business analytics concentration and provides a comprehensive overview of the fundamental concepts and tools of business analytics for improving business decision making and organization performance. The major topics discussed are: (i) the process of business intelligence and business analytics, (ii) the core concepts of "big data" management, (iii) the principles of data visualization and dashboard design, and (iv) the techniques of predictive analytics. Spreadsheet or commercial software is integrated in all topics. Equivalent course INFO 357 effective through Summer 2023.

INFO 266 Data Analysis and Visualization (3 credits)
Prerequisite(s): INFO 210 may be taken as prerequisite or corequisite. Restriction(s): Business Administration Majors, Business Analytics Majors, or Business Analytics Minors only. This course is a comprehensive introduction to the fundamental concepts and tools needed for participating in the developing discipline/field of business analytics which is aimed at improving business decision making and organization performance. The use of data warehouses to support business analytics is discussed and four core topics of business analytics are covered: (1) Data visualization through dashboard design; (2) Descriptive and inferential methods of data analysis; (3) Big data modeling, and (4) Methods of optimization. The core of business analytics will be developed from three perspectives - descriptive analytics, predictive analytics and prescriptive analytics. Spreadsheet or commercial software is integrated in all topics. Equivalent course INFO 440 effective through Summer 2023.

INFO 290 Technology in Business (3 credits)
Prerequisite(s): INFO 173. This course provides an introduction to the impacts of information systems on business. The course focuses on business processes and information needs in organizations, the roles of information systems in addressing these needs, and ultimately, providing support for the tactical and strategic directions of the business. The building blocks of information systems (hardware, software, networking, Internet, cloud computing, systems analysis, security, e-business, database systems, enterprise systems, etc.) are presented with an emphasis on how each of these components impacts business processes. Special fee.

INFO 299 Special Topics in Data and Technology (3 credits)
This course is designed to provide students with a comprehensive understanding of contemporary topics related to business-focused information technology (IT) and data analytics. Over the course of the semester, students will explore various aspects of IT and data analytics, including their applications, challenges, and implications for individuals and organizations. Through a combination of lectures, class discussions, and practical exercises, students will develop their knowledge of IT and data analytics. May be repeated for a maximum of 6 credits, provided the topic is different.

INFO 300 Integrated Core: Operations Management (3 credits)
Corequisite(s): FINC 300, MKTG 300 and MGMT 300. Prerequisite(s): BUGN 280 may be taken as prerequisite or corequisite; and ACCT 201 or ACCT 204. Restriction(s): Business Administration or Accounting majors only. This course is an intro to managerial concepts & quantitative tools required in the design, operation, and control of processes & systems needed to deliver a product or service in a business. Clearly, this material must be integrated with all of the other functional areas of an organization. In addition to examining the operational concepts, theories and tools, the course will include discussions of the interrelationships of these topics and their usefulness in the areas of marketing, management, finance & business strategy. The course will present methods that ensure that business operations are efficient in using as few resources as needed, & effective in meeting customer requirements. Focus will be on managing the processes that convert inputs (in the forms of materials, labor, and energy) into outputs (in the form of goods and/or services). This course incorporates mathematical, statistical, & decision making methods in the analysis of specific business processes & systems. The topics covered include operations strategy, process optimization & management, inventory control, production planning & scheduling, queuing, supply chain management, quality control, decision making, & project management. Computers are used to solve problems involving complex systems. 1 of 4 courses within the Integrated Semester of the undergraduate program. Special fee.

INFO 301 Business Decision Making (3 credits)
Prerequisite(s): INFO 173 or CSIT 100; and AMAT 120 or MATH 106 or MATH 122 or MATH 221 or STAT 109; or departmental approval. Restriction(s): For Business minors only. The underlying theme of the course is business problem solving. This course engages students in employing tools from operations management and management information systems in the solution of business problems. Analysis of quantitative decision-making and information systems from the management point of view will be covered. Special fee.

INFO 302 Business Analytics and Artificial Intelligence: Ethical and Legal Issues (3 credits)
Prerequisite(s): INFO 265. Restriction(s): Business Administration Majors. We increasingly live in a data-driven society. Companies, organizations, and governments can collect and analyze a tremendous amount of data about individuals. Artificial intelligence algorithms can determine who gets a job, a mortgage, or health insurance. But these systems can reinforce existing biases. Thus, this course explores the ethical and legal issues in business analytics, such as data privacy, bias, algorithmic fairness, and more.

INFO 306 Introduction to Web Development (3 credits)
Prerequisite(s): INFO 210. Restriction(s): Business Administration major. This course is designed to increase awareness and understanding of the movement to Web-based applications and enterprise-level management information systems as well as electronic commerce. This is a hands-on, lab-based Web page design course with significant exposure to the tools and requirements for the production of such systems. Students will learn to use a variety of development tools such as MS-Front Page, scripting languages such as JavaScript, VBScript and Perl and programming styles to develop both individually and in teams applications that simulate the realities of today's information systems and environment.

INFO 342 Information Technology Infrastructure (3 credits)
Prerequisite(s): INFO 290. Restriction(s): Business Administration major. This course is a survey of the many and varied hardware, software, service, and human resources that comprise the core of the information technology organization in the enterprise. The major resources are explained and their chief characteristics elaborated. Emphasis throughout the course is placed on the enterprise requirements for IT infrastructure and how each of these resources addresses each requirement. The infrastructure components are presented through the life cycle of resources: planning, selection, acquisition, implementation, operation, evaluation, and refresh.

INFO 351 Fundamentals of Project Management (3 credits)
Prerequisite(s): INFO 290. Restriction(s): Business Administration major. This course provides an overview of the tools, techniques, and methods used to manage business problems. The entire project life cycle-planning, implementation, control, and evaluation is addressed. Students are required to take the CAPM exam.

INFO 360 MIS Co-Op (3 credits)
Prerequisite(s): INFO 210 or INFO 342. Restriction(s): Business Administration major. This is an introductory cooperative educations course for students studying Management Information Systems. This course will integrate formal classroom study with a supervised full-time, or part-time off-campus employment experience. The purpose of this course is to develop self-awareness and to explore educational and occupational alternatives.

INFO 361 Information Technology Projects (3 credits)
Prerequisite(s): INFO 351 and; INFO 210 or INFO 342. Restriction(s): Business Administration major. This course provides students with the ability to use their accumulated information systems technology skills and knowledge to complete a real world project. These projects will be identified by the school or department and must include a major information systems component with an external organization.

INFO 363 Inferential Statistical Methods with Business Applications (3 credits)
Prerequisite(s): INFO 173, INFO 240, INFO 290 or departmental approval. This intermediate-level statistics course presents a thorough background in key inferential methods of data analysis used in business research. The course begins with an introduction to the process of business research through survey sampling and experimental design. Topics covered include tests for randomness, tests for goodness-of-fit, tests for association, and tests for differences in two or more groups in both a completely randomized setting and randomized block setting where the response variable is either numerical or categorical. Multivariate methods of inference are also developed in the completely randomized setting. Minitab, a statistical software package used to assist in data analysis is integrated throughout the course.

INFO 364 Regression Modeling in Business (3 credits)
Prerequisite(s): INFO 173, INFO 240, INFO 290 or departmental approval. Employing least-squares methods, this intermediate-level statistics course presents a thorough background in regression modeling used in business research and provides the underpinnings of predictive analytics in a world of Big Data. A model's assumptions are assessed through graphical residual analysis and confirmatory testing and refinements are made through variable transformations and influence analysis. Other methods of regression modeling of a numerical response variable, including LASSO, quantile regression, and regression trees are also introduced. Similarly, both classification tree methods and the logistic regression model used for predicting the probability of occurrence of some categorical phenomenon based on maximum likelihood methods are also presented. Minitab, a statistical software package used to assist in model building, is integrated throughout the course.

INFO 366 Managing Big Data and Cloud Computing (3 credits)
Prerequisite(s): INFO 210 and INFO 265. Restriction(s): Business Administration Majors, Business Analytics Majors, or Business Analytics Minors only. This course focuses on the management of "big data," the term given to the huge amounts of data that are routinely captured today as byproducts of business operations, transactions, and interactions on social networks. This data is warehoused in various forms in various databases, and designing the process by which data is extracted, transformed, and presented for analysis is key to successful and efficient analysis. Infrastructure choices including cloud computing, ELT vs ETL, and choice of language for distributed processing (Hadoop vs ECL/HPCC etc.) are discussed. With the popularity of Cloud Computing, often the data is stored in Cloud. Hence, cloud computing is essential part of this course.

INFO 367 Introduction to Data Mining (3 credits)
Prerequisite(s): INFO 257; and INFO 265 may be taken as prerequisite or corequisite. Restriction(s): Business Administration Majors, Business Analytics Majors, or Business Analytics Minors only. In this course students are introduced to analytical techniques for business decision making that are suitable for structured data. Training data, validation data, and out-of-sample validation data for model development and validation are discussed. Popular data mining techniques like decision trees, neural networks, and cluster detection are introduced. Students will use data mining software to analyze realistically large datasets to gain experience with these techniques.

INFO 369 Decision and Risk Analysis (3 credits)
Prerequisite(s): INFO 300. This course focuses on developing data driven decision analysis with the focus on optimal efficiency. The course employs lectures, case studies, formulation, and solution of business problems through application of managerial, quantitative and information systems methodology. Mathematical programming models, decision-making and Bayesian analysis, simulation models are learned with the applications in sports analytics, marketing, and portfolio optimization.

INFO 370 Pricing Analytics and Revenue Management (3 credits)
Prerequisite(s): INFO 265. This course covers elements of both the theory and the practice of revenue management and pricing, drawing on principles from economics and psychology while maintaining an analytics focus. Students will learn concepts, techniques, and frameworks for assessing and formulating pricing strategies and and will explore innovative approaches to setting prices. Course concepts will be reinforced through hands-on simulation exercises, case analysis, and group project work.

INFO 390 Digital Transformation (3 credits)
Prerequisite(s): INFO 290. Restriction(s): Business Administration majors only. The business world is at the start of a new phase of technology innovation. This phase threatens to transform existing industries, markets, and companies. It is supercharged by the acceleration of digital connectivity, the enormous growth of data, and the reduction in the cost of computer power and digital storage. Those businesses that can embrace this transformation, to drive down costs, create new markets, and increase productivity will likely thrive. Those who do not or cannot embrace the transformation will likely wither. This class will examine how the emergence of new technologies is driving the transformation of businesses across almost every industry.

INFO 391 Blockchain Technology (3 credits)
Prerequisite(s): INFO 290. Restriction(s): Business Administration Major. As more industries adopt blockchain technologies, it is important to understand the underlying technology, business uses, and regulatory environment. This course builds a basic understanding of blockchain technology and its use in the business world. These uses include, but are not limited to, cryptocurrencies (such as Bitcoin), smart contracts, non-fungible tokens and distributed autonomous organizations.

INFO 395 Business Analytics and Artificial Intelligence Strategy (3 credits)
Prerequisite(s): INFO 265. Restriction(s): Business Administration Major. Increasing permeation of Artificial Intelligence (AI) across industries and organizations is reshaping the nature and structure of business competition. This course introduces students to the classical business strategy formulation frameworks. It also examines novel considerations and opportunities posed by AI technologies in business strategy formulation. Pedagogically the course focuses on examining current AI successes and challenges with the goal of shaping the students' appreciation for how AI is transforming business competition and how firms leverage AI-enabled capabilities for sustainable competitive advantage.

INFO 401 Text Mining (3 credits)
Prerequisite(s): INFO 367. Restriction(s): Business Administration Majors, Business Analytics Majors, or Business Analytics Minors only. In this course students are introduced to analytical techniques for business decision making that are suitable for unstructured data (text, video, audio, etc.). Training data, validation data, and out-of-sample validation data for model development and validation are discussed. The focus of the analytical techniques is on text-mining, but related issues like natural language processing, context analysis, and situational awareness are also discussed. Students will use appropriate data-mining software to analyze realistically large datasets to gain experience with these techniques. Equivalent course INFO 368 effective through Summer 2023.

INFO 414 Information Security System Management (3 credits)
Prerequisite(s): INFO 210. Restriction(s): Business Administration Major. This course provides students an overview of the development, applications and management of information security (IS), business continuity (BC), and disaster recovery (DR) systems in business. Students are given a series of hands-on exercises and projects to practice skills in IS-BC-DR administration, designing, and related infrastructure planning. This course also introduces strategic concerns of local, cyber security administration along with cloud based IS-BC-DR concepts, issues and trends for all businesses.

INFO 416 Business Process Analysis and Enterprise Systems (3 credits)
Prerequisite(s): INFO 300. Restriction(s): Business Administration major. This course provides an in-depth exploration of the design, development, use, control, and maintenance of business processes. Emphasis is placed on the impacts of processes on the effectiveness and efficiency of business operations through business process engineering. Enterprise Resource Planning systems (ERP) are analyzed as attempts to integrate a consistent set of process across an organization.

INFO 470 Electronic Commerce: Creating Business Value Using Information Technology (3 credits)
Prerequisite(s): INFO 290. Restriction(s): Major within the School of Business and Information Technology majors only. This course is designed to provide the student an understanding of the consequences of the introduction of the Internet and the World Wide Web in the way business is conducted. The electronic commerce world is viewed primarily from the point-of-view of MIS. That is, the managerial issues related to the information infrastructure requirements are mainly attended to. Both individuals and organizations have been profoundly affected by related network technologies that have since permutated in form ever since the convergence of advanced communications and information infrastructure and the cable, telephone, television, and telecommunications industries. The student will learn about new forms of business practices in business-to-business, consumer-to-business, and intraorganizational transactions. Specifically, activities in the areas of electronic shopping, publishing, distribution, and collaboration will be explored. The following issues that have arisen as a result of electronic commerce (EC) will be explored: security, authentication, privacy, data encryption, intellectual property rights, freedom of expression using electronic media, fair use policies, legal liabilities, etc. Students will also learn about new organizational forms such as the "virtual" firm that are emerging as a result of EC.

INFO 476 Data Mining for Business (3 credits)
Prerequisite(s): INFO 240 or departmental approval. Restriction(s): Business Administration major. This course is concerned with data mining concepts and techniques and is designed as a practical introduction to the growing field of Data Mining. This powerful set of analytic techniques is becoming increasingly popular as an information management tool designed to guide decisions under conditions of limited certainty across such diverse fields as marketing, finance, economics, education, epidemiology, psychology, sociology, as well as many others.

INFO 488 Business Application with Artificial Intelligent (AI) Systems (3 credits)
Prerequisite(s): INFO 290. Restriction(s): Business Administration major. The course will cover the following topics: knowledge acquisition techniques, knowledge representation, inferencing, case-based reasoning, industrial application, uncertainty issues.

INFO 491 Independent Study in Information Systems (3 credits)
Prerequisite(s): Departmental approval; and INFO 290. Restriction(s): Business Administration major. A student, under the guidance of a faculty advisor, will conduct an in-depth study on a current topic in information systems. A project report or a research paper will be produced after this study. May be repeated once for a maximum of 6 credits as long as the topic is different.

INFO 492 Special Topics in Information Systems (1-3 credits)
Prerequisite(s): INFO 290 and departmental approval. Restriction(s): Business Administration major. This course covers the topics in the design, implementation, and applications of information systems. The topics also include various information technologies and their applications. The course may be repeated for credit as long as the "special topic" in each course differs from topics previously taken. May be repeated once for a maximum of 6 credits as long as the topic is different.

INFO 495 Business Analytics Capstone Practicum (3 credits)
Prerequisite(s): INFO 401 may be taken as a prerequisite or corequisite. Restriction(s): Business Administration Majors, Business Analytics Majors, or Business Analytics Minors only. In this capstone practicum, students will work on a collaborative group project that addresses, ideally, a live business problem using the analytical techniques learned in the other courses comprising this major. Students will clearly articulate the business problem and the goals of their chosen analytical approach. They will have access to realistically big data, and an opportunity to appreciate, through application, the possibilities and limitations of these analytical techniques. Students will be expected to understand and communicate the business implications of their analysis to interested stakeholders. Equivalent course INFO 495 effective through Summer 2023.

INFO 496 Advanced Systems Analysis and Design (3 credits)
Prerequisite(s): INFO 257. Restriction(s): Business Administration major. This course is an advanced (capstone) project-oriented exposition of the Management of Information Technology (MIT) knowledge to application system development process. Emphasis is placed on information analysis and the logical specification of the system and project management. Systems development life cycle (SDLC), systems development process and systems development tools, etc., are covered. The student is guided to develop a formal design document as a project.

INFO 561 Foundations of Data Analytics (1.5 credit)
This course focuses on the development and application of predictive modeling with regression and Analysis of Variance (ANOVA) used in business research and provides the underpinnings for data analytics in a world of Big Data. Emphasis is on data-driven decision making applied to diverse business settings. Data analysis and visualization software, used to assist in model building, is integrated throughout the course.

INFO 562 Operations Analytics (1.5 credit)
This course focuses on the use of data and the development of mathematical models to support decision making in the face of risk. The course employs predictive analytic techniques and a case approach to the study of applications related to matching supply with demand, capacity planning, queue management, location selection, and decision making through the use of analytical tools. Students learn decision making techniques by evaluating trade-offs, recognizing constraints, considering uncertainty and performing sensitivity analysis using optimization models, decision-making, simulation, queuing, and data analysis. The course will introduce real-world business challenges and teach methods and software tools available to tackle these challenges quantitatively.

INFO 563 Information Systems Strategy and Innovation (3 credits)
This course provides students with a fundamental understanding of the roles that information technology and technology innovation play in providing the tools and resources for developing new products, business models, and companies and supporting business strategy. This course focuses on the strategic management of technology and innovation in the firm. The purpose is to provide students with concepts, frameworks, and experiences that are useful for taking part in the management of innovation processes in the design and implementation of IT systems.

INFO 564 Operations and Supply Chain Management (1.5 credit)
This course provides students with a fundamental understanding of manufacturing and service operations and their role in the organization and in the supply chain. Surveys a wide range of operations and supply chain management topics, including process flow analysis, capacity planning, inventory management, facilities location, and total quality management. The course deals with these topics through a managerial, applications-oriented perspective. The course is integrative in nature, emphasizing the fit and relationship of operations with other functions of the firm.

INFO 570 Data Wrangling and Analysis (3 credits)
Restriction(s): MBA, MS Business Analytics, MS Human Resource Analytics, or Certificate students only. This course focuses on data processing topics such as feature extraction and missing data imputation as well as exploratory data analysis using a computer programming language (e.g., Python, R). Specific emphasis will be placed on creation and transformation features in addition to cleaning, summarizing, organizing, and visualizing datasets. Students will develop analytical skills in addition to being able to code in a programming language.

INFO 571 Discovering and Leveraging Emerging Technologies (1.5 credit)
Prerequisite(s): INFO 563. Restriction(s): MBA degree students only. Technological innovation are a primary source of competitive advantage for firms and impact the way we live and work. Over the past few decades we have seen various technologies revolutionize the business world - from the introduction of the personal computer, to the Internet revolution, and more recently mobile computing and hybrid cars. These revolutions are obvious in hindsight, but it often difficult to determine which technologies will take off and become successful and which have the potential to completely change industries. This course will examine the current state of the high technology field and introduce various methods and frameworks, in order to help determine which technologies are likely to succeed, which will probably fail, and which may lead to radical changes in the business world and in our everyday lives.

INFO 572 Business Requirements Analysis (1.5 credit)
Prerequisite(s): MGMT 565 or by permission of the MBA Office. Restriction(s): MBA degree students or graduate Project Management Certificate students only. This course will concentrate on these essential activities and associated skills: 1) conducting a feasibility analysis (business case) for the proposed project; 2) analyzing customer needs and converting them into specific requirements using a variety of methods such as use cases, user stories, piloting, and other elicitation techniques to develop business, functional, and non-functional requirements; 3) working with project managers and teams to properly define, implement, and control scope; 4) managing change and conducting quality assurance and control activities validating during implementation; and 5)validating scope and work with customers to achieve sign-off. This course will also introduce a variety of tools, techniques, and methods of business requirement analysis that apply to both predictive and adaptive methods of project implementation. Insights on good and best practices for managing projects, especially the larger and more complex projects are presented throughout the course. This course is for individuals aspiring to be business analysts or project managers.

INFO 573 Practicum in E-Commerce (1.5 credit)
Restriction(s): MBA degree students, MS Digital Marketing Analytics students, or graduate Digital Marketing Certificate students only. This course is designed to provide the student a practical understanding of the consequences of the introduction of the Internet and the World Wide Web in the way business is conducted. The aim of the course is to provide a hand on understanding of how to establish and run an online business. Students will learn about the importance of Web-based commerce by participating in it. The course will address issues such as online market research, building an effective Web presence, search engine marketing, and leveraging the use of other current techniques to drive traffic to a Website.

INFO 574 Database Systems for Analytics (3 credits)
Restriction(s): MS in Business Analytics and MBA students only. The aim of this course is to provide students with an overview of the development, applications, and management of database systems in the business analytics domain. This course employs cutting-edge tools that allow students to obtain skills in database design, management, and applications as well as data extraction using Structured Query Language (SQL). Additionally, this course introduces concepts of database administration, security, and non-relational databases.

INFO 575 Independent Study in Information Systems for Business (1-3 credits)
Restriction(s): MBA degree students only; Departmental approval. Under faculty guidance and supervision, this tutorial course is open to students who wish to pursue individual study and research in a particular discipline. May be repeated once for a maximum of 6 credits as long as the topic is different.

INFO 576 Enterprise Systems Management (1.5 credit)
Prerequisite(s): INFO 563 may be taken as prerequisite or corequisite. Restriction(s): MBA or Certificate students only. This course provides advanced techniques to help you manage complex enterprise systems, also referred to as enterprise information systems. It focuses on how to architect, design, and implement IT infrastructure in an enterprise. The course can help you learn how to manage new technologies in information systems and handle problem situations as they arise. You could also learn to use new software applications that you could use on the job. Topics include: Information structures, Business communication and networks, Information systems analysis, Information technology (IT) architecture, IT strategy, Enterprise systems management, legacy and Commercial-Off-The-Shelf systems integration and related topics.

INFO 577 Special Topics in Information Systems for Business (1-3 credits)
Restriction(s): Masters in Business Analytics and MBA degree students only; Departmental approval. An in-depth study of a selected topic, issue, problem or trend in information systems for business. The specific subject matter is not offered as an existing regular course or deserves more time-emphasis than is possible in a regular course. May be repeated eight times for a maximum of 12 credits as long as the topic is different.

INFO 578 Systems Development Life Cycle Management (1.5 credit)
Restriction(s): MBA or Certificate Students Only. This course stresses the competencies needed to manage information systems through their entire Systems Development Life Cycle (SDLC): preliminary investigation, analysis, design, development, implementation, testing and evaluation. We desire to improve our understanding and ability to efficiently and effectively analyze information needs, design appropriate solutions from among competing alternatives, manage the development of the solution, and continually evaluate outcomes and make adjustments that optimize the business system. The course will cover the importance of the project management discipline for effective translation of business requirements as the underlying basis of system design into a fully functional system. An emphasis will be given to the role of systems integration in the end-to-end analysis of a system. The course will also provide students with an understanding of the role and responsibility of a systems analyst within a project.

INFO 579 Agile Systems Development Management (1.5 credit)
Restriction(s): MBA degree students or graduate Project Management Certificate students only. Reducing cycle-time to bring products to the market in a shorter time has been the driving challenge for product development teams. Increasing economic pressures due to globalization, shrinking markets, commoditization, and competition, has made this challenge a reality and not an option any more. Managing this reality without compromising the product quality and performance requires an agile systems development and management approach. Agility includes flexibility, adaptability, and nimbleness in business processes, systems design and development, manufacturing, and strategy. This course is designed to provide the students an ability to understand the methods, processes, and tools for managing agile systems design and development projects.

INFO 581 Business Processes for Analytics (3 credits)
Prerequisite(s): INFO 574. Restriction(s): MS in Business Analytics students only. This course provides an introduction to critical business processes for analytics. The students will learn how to identify data needs for effective business process design; apply tools and methods for analytics life cycle process management including business problem definition, business requirements development, efficient analytics solutions deployment, monitoring, quality control including verification.

INFO 582 Optimization Methods for Business Analytics (3 credits)
Prerequisite(s): INFO 589 and INFO 570. Restriction(s): MS in Business Analytics students only. This course focuses on optimization methods and their use cases in business. Primarily, the course aims to help analytics practitioners make data-driven decisions. The course covers the modeling process that entails framing, formulating, and solving business problems using optimization.

INFO 583 Introduction to Data Mining for Business (3 credits)
Prerequisite(s): INFO 570; and INFO 561 or INFO 589. Restriction(s): MBA, MS in Business Analytics, MS in Digital Marketing Analytics, MS in Human Resource Analytics, and Certificate Students only; other programs permitted with department approval. The course provides a hands-on introduction to data mining applications across di#erent business scenarios. Students learn and apply supervised and unsupervised machine learning techniques to solve business cases. Students learn how to communicate the analytical insights that emerge from data mining to di#erent stakeholders. Students develop awareness of ethical implications of data mining for business purposes.

INFO 584 Data Visualization (3 credits)
Prerequisite(s): INFO 561 or INFO 589. Restriction(s): MBA, MS in Business Analytics, MS in Digital Marketing Analytics, or MS in Human Resource Analytics students only, or departmental approval. Data-driven decision-making using business intelligence technologies can have a profound impact on corporate strategy, performance and competitiveness. This course provides students skills of data analysis, design and visualization. Business data analysts must also be able to effectively organize and communicate practical implications of quantitative analyses to a broad array of audiences and stakeholders. Even the most sophisticated statistical analyses are not useful if they do not lead to actionable insight, or if the answers to business questions are not presented in a way that non-technical people can understand. Through data exploration and visualization, large amounts of complex information can be communicated clearly applying principles of graphic design to data visualization. Effective visuals are simpler to understand, have a stronger impact and significantly improve comprehension, insight and aid in decision making. This course provides an introduction as well as hands-on experience in fundamental business analytics, data visualization, and visual data storytelling. Along with database logical design, students will learn visual representation methods and techniques that increase the understanding of complex data and models.

INFO 585 Advanced Data Mining for Business (3 credits)
Prerequisite(s): INFO 583. Restriction(s): MBA, MS in Business Analytics, MS in Digital Marketing Analytics, or MS in Human Resource Analytics students only. The course builds on INFO 583 and it addresses more advanced topics in data mining applications for business analytics. The topics include advanced data acquisition and pre-processing techniques and text mining applications. The course leverages Python to provide hands-on experience with the application of tools and techniques discussed in the course.

INFO 586 Pricing Analytics and Revenue Management (3 credits)
Corequisite(s): INFO 583. Prerequisite(s): INFO 590. Restriction(s): Business Analytics degree students only. This course provides analytics students with proven concepts, techniques, and frameworks for assessing and formulating pricing strategies. Students will learn the process of making pricing decisions and explore innovative approaches for setting prices. The course covers elements of both the theory and the practice of revenue management and pricing, drawing on principles from economics and psychology while maintaining an analytics focus. Course concepts will be reinforced through hands-on simulation exercises, case analysis, and group project work.

INFO 587 Big Data Management and Analytics (3 credits)
Prerequisite(s): INFO 583. Restriction(s): MS in Business Analytics students only. This course provides a hands-on introduction to state-of-the-art Big Data management and modeling technologies and techniques.It will prepare students to ask the right questions about data, explore large and complex datasets, and build predictive models. Students will also learn the basics of parallel and distributed programming, as well as cloud computing.

INFO 588 Analytics Practicum (3 credits)
Prerequisite(s): INFO 570, INFO 583, INFO 584 and INFO 589. Restriction(s): MS in Business Analytics, MS in Digital Marketing Analytics, and MS in Human Resources Analytics students only. This course is designed to provide experiential opportunity to the students to apply their Business Analytics skills in solving a real business problem. In this internship students will work on a collaborative group or individual project that addresses, ideally, a live business problem using the analytical techniques learned in the other courses comprising this major. Students will clearly articulate the business problem and the goals of their chosen analytical approach. They will have access to realistically big data, and an opportunity to appreciate, through application, the possibilities and limitations of these analytical techniques. They will be expected to understand and communicate the business implications of their analysis to interested stakeholders.

INFO 589 Applied Statistics for Business Analytics (3 credits)
Restriction(s): MS in Business Analytics, MS in Digital Marketing Analytics, or MS in Human Resource Analytics students only. This course is aimed at providing analytics students with a basic knowledge of statistical concepts and methods that are needed to perform important business functions requiring data analysis, such as business forecasting, trend analysis, and exploring patterns and hidden opportunities. The focus is on using the tools and techniques to extract useful information out of data and to make correct interpretations, rather than their mathematical structure or derivation. Hands-on exercises will be used to reinforce learning by taking advantage of the built-in statistical functions in MS Excel and Tableau.

INFO 590 Decision Risk Modeling (3 credits)
Prerequisite(s): INFO 589 may be taken as prerequisite or corequisite. Restriction(s): Business Analytics degree students only. This courses focuses on using powerful spreadsheet features to model complex business situations characterized by risk with the goal of facilitating and informing decision making. The course covers • the basics of the modeling process with Excel • decision making models incorporating risk • building simulation models and using them to aid decision making under uncertainty • spreadsheet add-ins that facilitate modeling and optimization.

INFO 595 Digital Marketing Analytics (3 credits)
Prerequisite(s): INFO 583 and MKTG 585. Restriction(s): Graduate students in the Feliciano School of Business. This course is an intermediate to an advanced course that presumes solid familiarity with statistics, the basics of data analytics, and primary marketing concepts and theories. This course provides students with hands-on experience in preprocessing and analyzing various marketing datasets using different platforms. This course covers numerous applications of data analytics to the marketing field, such as understanding customer lifetime value, customer acquisition, and growth, measuring customer preferences, building recommender systems with personalization, advertising, retention and churn, social media influence, and discovering customer needs.