

# BUSINESS SYSTEMS & ANALYTICS (BSA)

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## BSA 700 Business Applications Programming

This course is designed to introduce students to the principles of business application programming for business analytics using selected high-level languages such as R, Python, and Hadoop. Emphasis is placed on identifying the capabilities and limitations of statistical computing languages for big data. Students will learn skills and techniques to solve big data problems through a series of steps that involve identification of problems, design of the solution logic, formal representation of program specifications, and implementation. The focus is on accessing data from multiple sources, manipulating different types of programming objects, performing character manipulation, and generating reports. Students will design and develop several computer programs throughout the term. Prerequisite(s): MBA 693

## BSA 705 Emerging Bus Sys & Analytics

The purpose of this course is to provide students with an understanding of the critical role that good data and effective information systems play in today's organizational problem solving and decision making. There are two main components of this course: (1) the historical perspective on the strategic role of data and computer systems; and (2) the structures, issues, and trends in contemporary business systems and analytics. Corequisite: MBA 820 Corequisite: MBA 820

## BSA 710 Systems Analysis and Database Design

This course is about structured analysis and design methodology for complex business systems. Students become familiar and use Entity Relationship Diagrams, Data Structure Diagrams, Data Flow Diagrams, Data Dictionaries, and Process Specifications to develop Systems Specifications. These specifications are utilized as the blueprint to develop and implement relational databases, and explore the Structured Query Language (SQL) used to manipulate and operate the database. Prerequisite(s): MBA 693

## BSA 720 Data Warehousing and Data Mining

This course focuses on data warehousing and data mining in organizations. Topics covered in the course include: data warehousing and mediation techniques aimed at integrating distributed, heterogeneous data sources; data mining techniques such as rule-based learning, decision trees, association rule mining, and statistical analysis for discovery of patterns in the integrated data; and evaluation and interpretation of the mined patterns using visualization techniques. Prerequisite(s): MBA 693

## BSA 725 Healthcare Analytics

Today's healthcare organizations are under intense regulatory and financial pressures to improve quality, efficiency, patient safety, patient satisfaction, and positive outcomes. This course is concerned with the study of how descriptive, diagnostics, predictive, and prescriptive analytics tools and techniques can impact the overall performance of healthcare organizations. Students learn to extract, collect, analyze, visualize, and interpret data from patient health records, insurance claims, financial records, and tell a compelling and actionable story. Class exercises enable students to understand ways to improve the effectiveness and efficiency of healthcare organizations. Prerequisite(s): MBA 693

## BSA 730 Optimization and Simulation

This course introduces students to decision making and problem solving with simulation and optimization tools and techniques. Students learn to formulate and construct a decision model with spreadsheets and use the optimization tools, Monte Carlo simulation, and sensitivity analysis to generate and interpret solutions. The course covers different types of optimization and simulation models, including linear programming, sensitivity analysis, integer linear programming, goal programming, multiple objective optimization, simulation modeling, and queuing theory. Prerequisite(s): MBA 693

## BSA 740 Data Visualization

One of the skills that characterize great business data analysts is the ability to communicate practical implications of quantitative analyses to any kind of audience member. In this course, students will learn how to visualize data, tell a story, and explore data by reviewing the core principles of data visualizing and dashboarding. The course aims to focus on effective and high impact visualizations of common data analyses to help them convey conclusions directly and clearly. Students will be able to get practiced in designing and persuasively presenting business "data stories" that use these visualizations, helping stakeholders make decisions and take action based on their business data capitalizing on design principles. Prerequisite(s): MBA 693

## BSA 780 Applied Research in Business Systems and Analytics

This customized course provides students with a unique opportunity to integrate their academic work with a wide range of professional studies including but not limited to independent studies, research projects, or internships. Prerequisite(s): MBA 693 and Approval of supervising professor and program director

## BSA 790 Special Topics in BSA