SUPPLY CHAIN MANAGEMENT AND ANALYTICS (SCMA)

SCMA 831 Advanced Enterprise Systems
Description: Analytical approach to the design, planning, and control of operations management systems, including domestic and international, manufacturing and service operations.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 832 Planning and Controlling Supply Chain Systems
Prerequisites: GRBA 815 (Supply Chain Management Strategies)
Description: Taught predominately by the case method with a few classes for review and summary lectures. Concentrates on higher management decisions involving the manufacturing, service, and public sectors. Facilities planning, labor, aggregate planning, strategic planning, capacity management, and trade-off analysis.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 833 Advanced Topics in Supply Chain Management
Prerequisites: GRBA 815
Description: Advanced conceptual and methodological practices in designing and planning supply chain systems. Advances and strategies in supply chain procurement, transportation, distribution and warehousing, globalization, outsourcing, and technology.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 834 Advanced Topics in Lean Supply Chain Management
Prerequisites: GRBA 815
Description: Focus on the improvement of supply chain operations through the application of lean management principles. Topics include just-in-time, six-sigma, theory of constraints, and associated tools and applications. The course would be offered primarily in the on-line MBA program.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 836 Project Management and Implementation
Notes: Department Supply Chain Management and Analytics not Management
Description: Planning and managing projects from initiation through implementation. Use of tools and techniques for bidding, planning budgeting scheduling, risk management and implementation.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 837 Risk and Simulation Modeling
Description: Analytical and simulation models for decision making in functional areas such as finance, accounting, marketing, personnel, operations, and inventory. Construction of decision models for practical applications. Emphasis on analyzing alternatives and implementing solutions that result in increased productivity.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 839 Global Supply Chain Management
Prerequisites: GRBA 815
Description: Focus on global aspects of supply chain managing with primary emphasis on sourcing and distribution strategies. Topics will include sourcing strategies, concepts and tools. Specific issues include make versus buy decisions, supplier evaluation and selection, total cost of ownership, contracts and legal terms, negotiation, and purchasing ethics.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 844 Managing Logistics in the Supply Chain
Prerequisites: GRBA 815
Description: Examination of physical distribution activities in the marketing mix from the viewpoints of both providers and users of components of logistics systems. Logistics problems of concern to the marketing manager include time and place utility concepts, spatial relationships of markets, channel design, transportation modes, and inventory management.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 847 Advanced Supply Chain Technology
Prerequisites: GRBA 815
Description: Technological advancements to include radio frequency identification systems, automated storage and retrieval systems, distribution routing systems. Description of physical characteristics, potential to support supply chain management, and implications on inventory management within supply chains.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 851 Predictive Analytics
Prerequisites: GRBA 851
Description: This course will focus on how knowledge management has been successfully applied in business in the form of predictive analytics. Predictive analytics extends statistical and/or artificial intelligence to provide forecasting capability. It will also describe in non-technical terms the statistical and artificial intelligence-based tools commonly used in forecasting and other business decisions involving big data.
Credit Hours: 3
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded
SCMA 852 Data Management and Organization  
**Prerequisites:** GRBA 851  
**Description:** Technology of databases and related human and managerial considerations. Databases are studied from the perspective of the logical organization, as well as from the perspective of managers and applications programmers, in the use of organizational data. Consideration of physical organization and SQL. Practical applications of databases.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded

SCMA 853 Business Data Mining and Descriptive Analytics  
**Prerequisites:** GRBA 851  
**Notes:** The Supply Chain Management Analytics department is changing the name to be more reflective of the content.  
**Description:** Data mining applies quantitative analysis to support humans in identifying actionable information from large amounts of data. Actionable means that value can be obtained, which for businesses usually relates to making money. This course will focus on how data mining has been successfully applied in business. It will also describe in non-technical terms how the statistical and artificial intelligence-based tools commonly used in data mining work. The course will also address ethical issues related to use of information obtained through data mining.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded

SCMA 854 Advanced Descriptive Analytics  
**Prerequisites:** GRBA 851  
**Description:** This course will focus on exploratory and initial data mining, including cluster analysis and link analysis.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded

SCMA 855 Prescriptive Analytics  
**Prerequisites:** GRBA 851  
**Description:** This course will focus on how optimization modeling techniques can be used to make the best decisions in a variety of business analytics applications. The emphasis will be on the formulation of different optimization problems and the use of the correct quantitative techniques to solve these problems.  
**Credit Hours:** 3  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded

SCMA 855 Decision Theory  
**Prerequisites:** Admission to PhD program and permission.  
**Notes:** This course will take place over an 8-week period.  
**Description:** Provides an overview of decision theory and decision analysis with a focus on decision-making under uncertainty. Topics covered may include decision theory, which includes a set of mathematical tools for describing and reasoning about decisions, and decision analysis, which involves the application of decision theoretic tools to real world problems. Considers both the mathematical and statistical foundations of decision theory, including Bayesian inference, and the application of these techniques to problems in business.  
**Credit Hours:** 1-3  
**Min credits per semester:** 1  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded

SCMA 856 Inventory Management and Procurement  
**Prerequisites:** Admission to PhD program and permission.  
**Notes:** This course will take place over an 8-week period.  
**Description:** Overview of the research literature in inventory management, including topics such as deterministic and stochastic models for inventory control and multi-echelon inventory theory. Introduce the research literature in the area of procurement, including topics such as supplier management and contract design.  
**Credit Hours:** 1-3  
**Min credits per semester:** 1  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded

SCMA 937 Simulation Modeling and Analysis  
**Prerequisites:** Admission to PhD program and permission.  
**Notes:** This course will take place over an 8-week period.  
**Description:** Overview of the uses of simulation and computation for analyzing stochastic models and interpreting real phenomena. Topics covered may include discrete-event simulation, Monte Carlo simulation, generating discrete and continuous random variates, the statistical analysis of simulated data, variance reduction techniques, and simulation optimization. Applications will be drawn from areas such as manufacturing, supply chain management and finance.  
**Credit Hours:** 1-3  
**Min credits per semester:** 1  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded

SCMA 938 Advanced Decision Theory  
**Prerequisites:** Admission to PhD program and permission.  
**Notes:** This course will take place over an 8-week period.  
**Description:** Provides an overview of decision theory and decision analysis with a focus on decision-making under uncertainty. Topics covered may include decision theory, which includes a set of mathematical tools for describing and reasoning about decisions, and decision analysis, which involves the application of decision theoretic tools to real world problems. Considers both the mathematical and statistical foundations of decision theory, including Bayesian inference, and the application of these techniques to problems in business.  
**Credit Hours:** 1-3  
**Min credits per semester:** 1  
**Max credits per semester:** 3  
**Max credits per degree:** 3  
**Grading Option:** Graded
SCMA 945 Service System Design
Prerequisites: Admission to PhD program and permission.
Notes: This course will take place over an 8-week period.
Description: Provides theoretical and methodological background on service system design. Considers the design and delivery of service in industries such as healthcare, banking, retailing, and evolving service sectors, to improve the productivity and quality of the system. Covers different aspects of system design and service delivery, such as technology use and mechanisms to promote individual and organizational learning.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 946 Revenue Management
Prerequisites: Admission to PhD program and permission.
Notes: This course will take place over an 8-week period.
Description: Provides an overview of the research literature in demand management and the use of optimization to derive pricing and revenue management decisions in the context of operations management. Topics such as demand and revenue forecasting, customer segmentation, capacity allocation, dynamic pricing, assortment management, discounting, overbooking practices, and auctions that are relevant for industries such as airlines, hotels, restaurants, retailing, online advertising, cloud computing, and ride sharing.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 955 Mathematical Programming for Business
Prerequisites: Admission to PhD program and permission.
Notes: This course will take place over an 8-week period.
Description: Provides an overview of mathematical programming theory and techniques, such as linear, integer and nonlinear programming, and will cover both problem formulation and solution approaches. Understanding of formulating and solving large-scale problems in broad application areas of supply chain management and business analytics.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 956 Stochastic Models for Operations and Supply Chain Management
Prerequisites: Admission to PhD program and permission.
Notes: This course will take place over an 8-week period.
Description: Provides the theoretical foundation in stochastic processes necessary to analyze complex systems that exhibit random behavior over time, which regularly arise in operations and supply chain management. Introduces the basic concepts of stochastic processes, describe the types of stochastic processes most commonly used in the study of operations and supply chain management, discuss how to identify the appropriate type of process to model a given system, and demonstrate the methods used to model and analyze stochastic systems.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 3
Grading Option: Graded

SCMA 996 Directed Reading or Research
Prerequisites: Admission to PhD program and permission.
Description: Individual research or reading on a selected problem in operations management, supply chain management, or analytics.
Credit Hours: 1-3
Min credits per semester: 1
Max credits per semester: 3
Max credits per degree: 24
Grading Option: Pass No-Pass