Note – The following is a comprehensive list of courses offered by the Department of Information, Risk, and Operations Management. The semester in which a specific course is most likely to be offered is noted.

INFORMATION MANAGEMENT

MIS 381N – Strategies for Networked Economy - Offered in Fall and Spring

Description: Firms have become globally interconnected creating a complex network of customers, suppliers and partners. New forms of IT-enabled and IT-driven services (e.g., Google Trends, Cloud Services) and platform-mediated networks (e.g. Mastercard, eBay, Facebook) are mushrooming globally attracting millions of customers. With that there is an explosion of data and hidden knowledge to be extracted. There are numerous opportunities and challenges for both producers and users from these IT innovations. This class explores the competitive dynamics of IT evolution and platform-mediated networks and how they create value or creatively destroy value (e.g., Blockbuster, Borders). This is an interdisciplinary class that integrates and complements concepts and principles from various functional areas. Case studies are used throughout the course to illustrate the application of theories and concepts. The course is highly valuable for consulting roles, entrepreneurs, investment firms (seeking to value new innovation and IT sector), and strategic management.

The class will address the following specific questions: How is digitization impacting competition and enabling industry transformation? What are some unique characteristics of, and how are producers competing in, the software, hardware, and communication ecosystems? How are new innovations like social networking and cloud computing impacting competition? Is IT-driven innovation changing industry structure, making markets more efficient, or altering a firm’s boundary and competitive positioning? Are there profound changes in product and process design resulting from new capabilities? How to extract meaningful information about customer preferences/satisfaction/loyalty? How to create an IT infrastructure that will enable global sourcing? How to justify IT investments? How to manage IT-enabled transformation (change management)? How to assess and manage risks in complex projects?

MIS 382N.5 - Managing Complexity - Offered in Fall

Description: The world and the organizations in it are increasingly complex and the future is increasingly uncertain. Conventional management approaches are clearly not adequate to deal with these emerging realities. Do you want to enhance your ability to understand some of the multiple causes of this complexity and develop some effective strategies for managing this complexity?

Modern organizations can be understood as complex adaptive systems (CAS) and this understanding leads to new insights about managing complexity, particularly the role of information and information systems in this task. In this course we explore these new insights and discuss management implications of CAS theories with particular attention to specific recommendations for information systems that emerge from these theories. CAS have diverse, learning agents that have nonlinear relationships with each other and with their environments and the dynamics of CAS are dominated by self-organization, emergence and co-evolution. The result is that CAS are characterized by uncertainty and surprise leading to great difficulties for managers. In this course we emphasize sense making, learning, improvisation, thinking about the future, designing and managing relationships as complements to the traditional managerial activities of command, control, and planning. We also discuss the important role of leadership in CAS and how leadership should be different when managing complexity. As we are all discovering in the turbulent times we now live in, those managerial strategies that depend on a fairly detailed knowledge of the present situation as well as the ability to make reasonable forecasts of a future situation are less useful than in the past. Fortunately, complexity science offers some ways of better understanding and managing these uncertain situations.

MIS 382N.9 - Data Mining for Business Intelligence (Predictive Modeling and Data Mining) - Offered in Spring

Description: In virtually every industry, the competitive strategies organizations are employing today rely extensively on data analysis to predict the consequences of alternative courses of action, and to guide executive decision making, more generally. Companies today are competing on analytical capabilities and require analysts and decision makers who both understand the value of analytics, can identify opportunities and know how best to apply data analytics to enhance business performance. The spreading of analytical competition spans industries, including health care, retailing, travel, entertainment, consumer good, consumer finance, and even professional sports teams.

This course provides a comprehensive introduction to data mining problems and tools to enhance managerial decision making at all levels of the organization and across business units. We discuss scenarios from a variety of business disciplines, including the use of data mining to support customer relationship management (CRM) decisions, risk management, decisions in the entertainment industry, and financial trading. The course is designed specifically to allow managers understand the business intelligence tools available to them to improve decisions by deriving valuable intelligence from data.

The three main goals of the course are to enable students to:
1. Approach business problems data-analytically by identifying opportunities to derive business value from data.
2. Interact competently on the topic of data-driven business intelligence (know the basics of data mining techniques and how they can be applied to extract relevant business intelligence.)
3. Acquire some hands-on experience so as to follow up on ideas or opportunities that present themselves.

The course is designed for students with various backgrounds -- the class does not require any technical skills or prior knowledge.

MIS 382N.12 – User Generated Content Analytics - Offered in Spring 2017

Description: The rapid proliferation of massive amounts of unstructured data like text, pictures and videos created by both online (e.g., social media) and offline users (e.g., reports written by healthcare providers, customer service representatives, maintenance and repair technicians, etc.) has created unprecedented opportunities for firms to assess consumer preferences and tap into the wisdom of the "crowd", which can better inform competitive strategies, new product development decisions and marketing campaigns, to name just a few application areas. Unstructured data also has enormous power to predict business outcomes such as sales and customer switching. In addition to new insights and predictive analytics, firms leveraging user generated content can assess important attributes of the users themselves – the attention they garner from others, their influence and network positions – in order to assess who may be candidates for online brand and product advocacy or whose word-of-mouth matters the most.

Leading edge firms in every vertical ranging from financial services to retail are beginning to focus on user generated content in an attempt to transform business strategies and processes in order to achieve competitive advantage. This course will provide students with both theoretical foundations of and hands-on training in extracting critical business insights from such content, and to link such insights to better decisions for superior
business performance and competitiveness. Topics include text analytics and sentiment analysis, business predictions from unstructured data, new business models enabled by user generated content, and applications and best practices in brand management, public relations, sales, new product development, and customer service.

The course is geared toward metrics, measurement and predictions, and therefore builds on quantitative foundations of probability, statistics and computer science. While no coding is involved, students will be supplied with custom delivered Python scripts that help accomplish a range of tasks from accessing user generated content to advanced text mining and predictive analytics.

MIS 383N.13 - Managing Innovation in a Global Company - Offered in Spring 2017

How do companies successfully innovate across national and cultural borders in distributed and increasingly digital and open environments? Clearly there is no “one best way” to manage innovation including open innovation in such diverse settings. This course gives you a rich understanding, thinking tools, and hands-on experience in skills how to manage open innovation in global environments by firms that may be large, established organizations as well as small entrepreneurial start-ups operating in global product and service markets. We will examine innovation models across industries and in different geographic regions. We examine innovation opportunities and risks and how to manage them in a variety of global contexts.

Learning will take place from case analyses, readings, independent research, guest lectures, class discussions, and hands-on experiences in open innovation communities. The team project involves formulating and setting up a crowd based collaboration for innovation.

In this course, the students learn to:

• Understand how open innovation business models vary by countries and different institutional environments (e.g., intellectual property and labor laws).
• Debate the current and future ethical and legal challenges that models face.

The course is designed for students with various backgrounds -- the class does not require any technical skills or prerequisite courses on organizations. The course is vital for a broad range of business careers in which innovation in a global context is a core part including entrepreneurial start-ups, management consulting, R&D, strategic planning, marketing, information management, operations, and risk management.

SUPPLY CHAIN AND OPERATIONS MANAGEMENT

OM 386 - Service Operations - Offered in Spring 2017

Description: This course explores the dimensions of successful service firms. It prepares students for enlightened management and suggests creative entrepreneurial opportunities. Outstanding service organizations are managed differently than their “merely good” competitors. Actions are based on totally different assumptions about the way success is achieved. The results show not only in terms of conventional measures of performance but also in the enthusiasm of the employees and quality of customer satisfaction. Beginning with the service encounter, service managers must blend marketing, technology, people, and information to achieve a distinctive competitive advantage.

This course will study service management from an integrated viewpoint with a focus on customer satisfaction. The material will integrate operations, marketing, strategy, information technology, and organizational issues. Specific topics include (i) designing a service strategy and delivery system, (ii) defining and managing service quality, and (iii) managing variability and uncertainty. Finally, since the service sector accounts for over 60% of GDP worldwide and approximately 80% of GDP in the United States, this course helps students to discover global business opportunities.

OM 386 - Pricing and Revenue Optimization - Offered in Fall (This course is cross-listed with MKT382 called Data Analytics & Pricing Dynamics. Please see MKT course description for details)

OM 386 - Strategic Sourcing - Offered in Fall

Description: Today’s business environment depends significantly on the interdependent relationships that make up the supply chain of virtually any successful manufacturing or service company. Whatever the supplier provides, the effective organization needs a robust system to procure the correct goods and services at the best possible price for the organization. Once the organization has made the decision to procure goods and services from another organization, both organizations must clearly define the parameters of the relationship. This course will address the process of procurement including terminology, metrics, and decision making. Additionally, we will investigate the best practices and processes for managing the relationships with suppliers and their performance. We will also explore the sourcing decision and the strategic ramifications of producing/providing goods and services internally or purchasing them from external organizations.

OM 386 - Supply Chain Management - Offered in Spring 2016, Fall 2017

Description: Supply Chain Management involves the flows of materials and information among all of the firms that contribute value to a product, from the source of raw materials to end customers. We will integrate issues from finance (investments in productive assets), marketing (channels of distribution), logistics, and operations management to develop a broad understanding of a supply chain. By taking a strategic perspective, we will focus on relatively long term decisions involving the investment in productive resources, configuration of processes, product designs, and development of partnerships with suppliers and channels of distribution.

Although the development of analytical tools is not one of the primary objectives of the course, students should be comfortable with quantitative analysis. By the end of the course, you should have developed an appreciation for the major strategic issues trade-offs in supply chain management as well as the ability to use analytical tools and conceptual frameworks to make decisions.

OM 386.4 - Operations Practicum - Offered in Spring

Description: The Operations Practicum provides a hands-on experience in tackling real-world problems in operations management. Groups of 4-6 students will act as a consulting team to manage a substantial project with a well-known manufacturing or service firm in order to hone their abilities in process analysis and design, supply-chain management, and operations strategy. Each team responds to a request from a sponsoring company with a proposed work plan, implements it, and reports the results to the client during the semester. This class builds on the knowledge gained from the core operations class to enable students to 1) solve practical problems in operations management; 2) improve their consulting and presentation skills; 3) integrate their operations and information management toolkits; 4) differentiate themselves for the job market with real-world experience; and 5) take a closer look at some promising prospective employers.
OM 386.5 - Managing Projects - Offered in Fall

Description: Projects are commonplace in businesses, non-profit operations and government. However, they tend to be most complex in a product development context because of the evolving character of customer wants. Large-scale projects are characterized by a significant commitment of organizational and economic resources coupled with a high degree of uncertainty. Thus, it is imperative for managers to understand what are the main issues and problems in the management of project development projects and to have a thorough knowledge of the conceptual models and techniques available to deal with them. The objective of this course is to provide an integrative view of conceptual models such as project definition and selection, risk management and critical path scheduling, monitoring and execution, and portfolio management.

OM 386 - Supply Chain Analytics - Offered in Spring 2017

Description: In this course we focus on analyzing internal and external information available to firms with the purpose of improving supply chain management decision making. The course consists of two main modules: (i) demand forecasting for production planning and management of distribution, and (ii) the utilization of web mining techniques to tap into information useful for quality management, as well as product design and process improvement.

Our module on demand forecasting consists of four broad segments: First, we develop the theoretical foundation to build forecasting models that incorporate both the power of predictive analytics and the trends and autocorrelation patterns identified from historical data. Second, we will learn to use these models on point-of-sale information to build top-down, bottom-up and middle-out demand forecasts across the enterprise. Third, we will study the use of subjective managerial judgement in the forecasting process and explore how this approach is used at leading corporations, and finally, we will learn to use the developed predictive dynamic models for aggregate supply chain planning, for local distribution decision making as well as to influence and shape demand. Consumers routinely express their opinions about products and services they consume in blogs and web-based product review forums. In the second module of this course we explore the use of this “wisdom of crowds” information to make inferences regarding service-process control and product/service quality, as well as an aid in the competitive positioning and introduction of new products.

The teaching approach includes a combination of lectures, individual assignments and group projects.

RISK MANAGEMENT

RM 392 - Financial Modeling and Optimization - Offered in Spring 2016, Fall 2016

Description: This course focuses on modeling and optimization techniques that are commonly used in financial settings. Among topics that are considered in this class are: short-term financing, dedication, arbitrage detection, mean-variance optimization, arbitrage-based pricing, constructing index funds, option pricing, asset-backed securities, and risk management. In this course, you will be introduced to optimization methods such as linear programming, convex programming, integer programming, and dynamic programming. These methods will be discussed to the extent that enables you to recognize and formulate practical questions as optimization problems. These problems will then be solved using either Excel or R. The course is designed to be workshop-like to emphasize hands-on experience.

RM 395.7 - Managing International Risk - Offered in Fall

Description: This course will focus on considerations in and influences on international risk management. In so doing, we will discuss: basic risk and crisis management principles pertinent to multinational firms, including financial, legal and cultural cross-national differences that impact corporate risk management strategies; and specific multinational marketplaces (e.g., reinsurance markets, captive offshore insurance companies, foreign exchange markets, etc.). These strongly affect the traditional United States of America corporate structure and risk management process. Such topics as terrorism risk and security precautions will also be discussed from a business (as opposed to social) perspective. We will also develop an in-depth comparative global risk strategic management analysis through an individualized group project.

BUSINESS ANALYTICS

The following courses apply to Business Analytics concentration.

STA287 – FLEX Core: Business Analytics & Decision Modeling - Offered in Spring

Description: This course introduces some of the basic concepts in quantitative business analysis used to support organizational decision making over various time horizons. We focus on financial decision-making but the methods explored apply to all areas of the organization.

OM 386 Pricing and Revenue Optimization - Offered in Fall

RM 395.7 - Managing International Risk - Offered in Fall

MIS 382N.9 - Data Mining for Business Intelligence (Predictive Modeling and Data Mining) - Offered in Spring

MIS 382N.12 – User Generate Content Analytics - Offered in Spring

OM 386 - Supply Chain Management - Offered in Spring 2016, Fall 2017

OM 386 – Supply Chain Analytics – Offered in Spring 2017

RM 392 - Financial Modeling and Optimization - Offered in Fall