Operations and Information Management (OPIM)

opim.business.uconn.edu

5103. Managerial Statistics

Three credits. Prerequisite: Open only to graduate business students, others with consent. Not open for credit to students who have passed BADM 5181.

Covers some of the more familiar classical inference procedures and the basic statistical concepts that are often essential to the interpretation of business data. Methods of understanding variability, and detecting changes are explored using descriptive, exploratory, and inferential statistics found in widely available statistical packages. Topics include: discrete and continuous random variables, sampling, confidence intervals, hypothesis testing, and linear regression.

5110. Operations Management

Three credits. Prerequisite: OPIM 5103 or 5603; open to MBA and MSBAPM students, others with consent. Not open to students who have passed OPIM 5184.

An operations manager is concerned with designing, operating and controlling a system for producing goods and services. Design decisions include selecting a process technology, organizing jobs, selecting vendors, and developing the location and layout of facilities. Operating the system involves planning and scheduling work and material flow, controlling quality, and managing inventories. General systems concepts and models are developed and applied. Topics include process flow analysis, inventory systems, waiting line analysis, quality design, capacity resource planning, project management, and integrating operations with the firm's strategic plans.

5165. Management Information Systems

Three credits. Prerequisite: Open only to MBA and MSBAPM students, others with consent. Not open for credit to students who have passed OPIM 5182.

Emphasis on business applications and how to structure the development and use of information systems for maximum benefit to the organization. Topics include: decision support systems, impact of the computer upon individual and organizations, competitive implications, technology change, telecommunications, and control of information systems resources.

5181. Introduction to Data Analytics

1.5 credits. Prerequisite or corequisite: BADM 5180.

Introduction to key issues and concepts in data analytics. Begins by delineating the differences between standard statistical analysis, including model estimation and evaluation, and the data driven approach of data analytics. A good deal of emphasis is placed on critical issues underlying almost all data analytics projects, including data quality (accuracy, objectivity, and reliability), missing values, outliers, and data standardization. Introduction to basic analytics techniques and processes.

5182. Management Information Systems

1.5 credits. Prerequisite: Open only to MBA students, others with consent. Not open to students who have passed BLAW 5182.

Information technology (IT) has had a dramatic impact on how individuals and organizations work, and is an important force shaping entire industries and value creation by firms. Most business school graduates will have IT related responsibilities during their careers, no matter which functional area they are in, and will be involved in efforts to select, adopt, and exploit information technologies in support of business goals. The goal of this course is to prepare students to execute these responsibilities effectively, and to be able to do so even as the set of available technologies changes over time. The course presents students with frameworks that let them analyze business situations involving IT in a structured way. It will also help them develop sophisticated understanding of the links between IT, business strategy, and business process. They will also gain an appreciation of the organizational and management practices that complement IT investments.

5183. Introduction to Operations Management

1.5 credits. Corequisite: BADM 5181; open only to students in the full-time MBA program.

Overview and introduction to operations management. Focus on the process view of operations and develops a framework for process analysis and improvement with and without variability.

5184. Operations and Supply Chain Management

1.5 credits. Prerequisite: OPIM 5183.

Built on the previous module, covers critical and specific topics in operations management, including inventory, quality, lean operations, and operations across firms (supply chains). It introduces both qualitative strategies and quantitative models concerning these topics.

5185. Introduction to Data Analytics and Managing Information Systems

Three credits. Prerequisite: BADM 5103 or OPIM 5103. Not open for credit to students who have passed OPIM 5165, 5181, or 5182.

Introduction to key issues and concepts in data analytics. Delineates differences between standard statistical analysis, including model estimation and evaluation, and the data driven approach of data analytics. Emphasis on critical issues underlying almost all data analytics projects, including data quality (accuracy, objectivity, and reliability), missing values, outliers, and data standardization. Introduction to basic analytics techniques and processes. Prepares students to execute IT-related responsibilities effectively, and to be able to do so even as the set of available technologies changes over time. Presents students with frameworks that let them analyze business situations involving IT in a structured way. Students will develop sophisticated understanding of the links between IT, business strategy, and business process. Students will also gain an appreciation of the organizational and management practices that complement IT investments.

5270. Introduction to Project Management

Three credits. Prerequisite: OPIM 5165 or 5182; open only to MBA and MSBAPM students, others with consent.

Examines the project management process and the management of a portfolio of projects, with focus on techniques to overcome the pitfalls and obstacles that frequently occur during a typical project. Designed for business leaders responsible for implementing projects, as well as beginning and intermediate project managers.

5272. Data Management and Business Process Modeling

Three credits. Prerequisite: Open only to MBA and MSBAPM students, others with consent.

Introduces common techniques for relational data management, including conceptual modeling, table design and Structured Query Language (SQL). Additionally covers topics from business process re-engineering, with a focus on process modeling and how process improvement influences favorable database design.

5500. Field Study Internship

Three credits. International students must have completed both a spring term and a fall term prior to taking this course. Instructor consent required. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

Gives students real-world experiences in applications of analytics and/or project management through an internship or industry project undertaken individually with a company under the joint supervision of a faculty member and the student's field supervisor. Student performance will be evaluated on the basis of an appraisal by the field supervisor and a detailed written report submitted by the student.

5501. Visual Analytics

Three credits. Prerequisite: OPIM 5604.

Explores techniques and best practices in visualizing data. From simple cross tabs to more complex multi-dimensional analysis, explores why particular data visualizations can better illustrate patterns and correlations inherent in the data itself. Examines cognitive function and its role in data visualization designs; showing that data visualization can reveal answers and questions alike. Utilizing state of the art software, the use of parameters, filters, calculated variables, color, space and motion to visually articulate the data are surveyed. The use of dashboards to quickly reveal data-driven information that has daily relevance to executives, managers, supervisors and line personnel are investigated. Common pitfalls in visualization design and why less is often more are considered.

5502. Big Data Analytics with Hadoop

Three credits. Prerequisite: OPIM 5604 and 5272.

In-depth, hands-on exploration of various cutting-edge information technologies used for big data analytics. The first half focuses on using big data management techniques for ETL (extract-transform-load) operations. The second half focuses on using big data analytics tools for data mining algorithms including classification, clustering, and collaborative filtering. Extremely hands-on, requiring students to spend significant time working with large datasets. Students are expected to have taken at least one course in data modeling and one course in data mining (please see pre-requisites) or have significant related work experience. Students should expect to become familiar with the Unix operating system, as well as with programming in Python. Students may be required to install some software on your computers on your own, with very little support, if any, from the instructor or anyone else. Students should be willing to troubleshoot any issues during installation, drawing help from Google searches.

5503. Data Analytics using R

Three credits. Prerequisite: OPIM 5604.

Helps students develop proficiency in data analytics using R for statistical inference, regression, predictive analytics, data mining, and Text mining: analyzing twitter and social network data. Combines lectures, hands-on exercises, business case discussions, and student presentations in a professional environment.

5504. Adaptive Business Intelligence

Three credits. Prerequisite: OPIM 5603; open only to MBA and MSBAPM students, others with consent.

The use of techniques from statistics and optimization to implement adaptive business intelligence (ABI) decision support systems. The course will introduce students to the different components of ABI systems as well as to the fundamentals of adaptive statistical methods, simulation adaptive methods, and evolutionary algorithms. Applications to diverse management contexts evolving in time will also be discussed.

5505. Analytical Consulting for Financial Services

Three credits. Prerequisite: OPIM 5641 or BADM 5181.

Exposes students to a wide array of real consulting situations in business analytics operations and financial services, and will teach students methods of addressing these problems using spreadsheets, simulation, and optimization methods. While consulting encompasses many specific tasks and requires broad functional knowledge, there is an increased need and appreciation of the usefulness of analytical consulting.

5506. Managing International Development Projects

Three credits. Prerequisite: OPIM 5270.

Application of project management knowledge, tools, and techniques to the planning, organization, and delivery of international development projects and programs. Funded by institutions (e.g., multilateral or regional development banks, United Nations associated agencies, bilateral government agencies, non-governmental organizations, global funds), these projects/programs cover a wide range of sectors and focus on poverty reduction/alleviation and improving living standards of people in developing and emerging countries, assistance to victims of natural or people caused disasters, capacity building and development of basic physical and social infrastructures, and on promoting environmentally sound development and basic human rights protection.

5507. Agile Project Management

Three credits. Prerequisite: Open only to MBA and MSBAPM students, others with consent. Corequisite: OPIM 5270.

Foundations of the agile revolution as Lean Six Sigma theories cross over from manufacturing to software, product design, startups, and innovation. Dissects the types of organizations where Agile will work, and where it won't. Recognition of Personas, and their impact on development and product design. Leadership components required at the transformation level, product owner level, scrum master level, and sprint team level. Test Driven Design and Extreme programming theories underscore the new attributes away from traditional project management. Introduction of agile metrics and the management decisions required when risk or conflict begin to derail an Agile effort. Leverages Trello or Jira, two of the most popular Agile Project Management software packages used in companies today.

5508. Healthcare Analytics and Research Methods

Three credits. Prerequisite: BADM 5103 or 5180 or OPIM 5103 or 5603; open only to MBA and MSBAPM students, others with consent. Not open for credit to students who have passed OPIM 5894 when offered as Healthcare Analytics.

Evidence-based practice, research techniques, health data collection devices, legislation and regulation of health data, ethical use of health data, and reporting tools. Prepares students for employment opportunities within a clinical or medical research environment.

5509. Introduction to Deep Learning

Three credits. Prerequisite: OPIM 5604; open only to MBA and MSBAPM students, others with consent. Not open to students who have passed OPIM 5894 when offered as Introduction to Deep Learning.

Introduction to topics related to deep learning and will build on your previous experience in predictive analytics. Use of neural networks for a host of data and applications - including time series data, text data, geospatial data, and image data.

5510. Web Analytics

Three credits. Prerequisite: OPIM 5604; open only to MBA and MSBAPM students, others with consent. Not open for credit to students who have passed OPIM 5894 when offered as Web Analytics.

Introduction to key concepts, techniques, and tools for analyzing web data to derive actionable customer intelligence, develop digital marketing strategies and evaluate their impacts. Clickstream tracking, search engine analytics, digital experiments, and social analytics.

5511. Survival Analysis with SAS

Three credits. Prerequisite: OPIM 5604; open only to MBA and MSBAPM students, others with consent. Not open for credit to students who have passed OPIM 5894 when offered as Survival Analysis using SAS.

Describes the various methods used for modeling and evaluating survival data, also called time-to-event data. General statistical concepts and techniques, including survival and hazard functions, Kaplan-Meier graphs, log-rank, and related tests, Cox proportional hazards model, and the extended Cox model for time-varying covariates and non-proportional hazards.

5512. Data Science using Python

Three credits. Prerequisite: OPIM 5604; open only to MBA and MSBAPM students, others with consent. Recommended preparation: Students are expected to know the fundamentals of Python programming language (or another language) through self-study, previous coursework or previous work experience, including topics such as loops, functions, and data structures. Not open to students who have passed OPIM 5894 when offered as Data Science with Python.

Data science concepts using the Python programming language. Data wrangling and management using Pandas; visualization using MatPlotLib; fundamentals of matrix algebra and regression, with illustrations using Numpy; machine learning, focusing on fundamental concepts, classification, and information extraction.

5601. Technical Communications in Business Analytics and Project Management

One credit. Prerequisite: OPIM 5272 or 5641. Prerequisite or corequisite: OPIM 5604 or 5270.

Reviews the foundational knowledge necessary for MSBAPM student to be a well-equipped analytics professional. Communication skills are essential to convey technical analytical content. Topics such as Public Speaking, Emotional Intelligence, Non-Verbal Communication, Requirements Gathering, and Etiquette via multiple modes of Communications (email, phone, in person, one to one, and one to group) and more will be discussed and practiced. Such skills are critical to professional success as the industry is changing to require technical depth and also the ability to connect it to the business. Topics covered include: Communication Skills - Bridging the Gap between the Technical and Business; Presentations Skills - Technical Content to the Business; Networking with Analytics Professionals

5603. Statistics in Business Analytics

Three credits. Prerequisite: Open only to MBA and MSBAPM students, others with consent.

Advanced level exploration of statistical techniques for data analysis. Students study the concepts of population and sample; discuss the difference between population parameters and sample statistics, and how to draw an inference from known sample statistics to usually unknown population parameters. Topics will focus on rigorous statistical estimation and testing. Prepares students with the skills needed to work with data using analytics software.

5604. Predictive Modeling

Three credits. Prerequisite: OPIM 5103 or BADM 5180 or enrollment in Business Analytics and Project Management M.S. program; instructor consent required.

Introduces the techniques of predictive modeling in a data-rich business environment. Covers the process of formulating business objectives, data selection, preparation, and partition to successfully design, build, evaluate and implement predictive models for a variety of practical business applications. Predictive models such as neural networks, decision trees, Bayesian classification, and others will be studied. The course emphasizes the relationship of each step to a company's specific business needs, goals and objectives. The focus on the business goal highlights how the process is both powerful and practical.

5620. Managing and Controlling Information Systems

Three credits. Prerequisite: OPIM 5165 or 5182; open only to MBA and MSBAPM students, others with consent.

Examines the management control problems and systems development processes from the dual perspective of managers of the computer information system, and the organization as a whole, including persons who interact extensively with the systems personnel or are administratively in a position to influence the information system.

5641. Business Decision Modeling

Three credits. Prerequisite: OPIM 5103 or BADM 5180; open only to MBA and MSBAPM students, others with consent.

Discusses business modeling and decision analysis. Covers topics such as optimization, simulation, and sensitivity analysis to model and solve complex business problems. As spreadsheets are often used as software tools for such problem solving, the course will emphasize developing high quality spreadsheets to ensure that the objectives of the model are clear, defining the calculations, good design practices, testing and presenting the results.

5668. Project Risk and Cost Management

Three credits. Prerequisite: OPIM 5270; open only to MBA and MSBAPM students, others with consent.

Introduces the art and science of project risk as well as continuity management and cost management. Risk management ensures a project is completed through both general and severe business disruptions on local, national and international levels. Managing the risk of a project as it relates to a three-part systematic process of identifying, analyzing, and responding is examined through actual case studies. In addition, this course will examine the process of cost management, early cost estimation, detailed cost estimation, cost control using the earned value method, issues related to project procurement management, and the different types of contracts for various scope scenarios.

5671. Data Mining and Business Intelligence

Three credits. Prerequisite: OPIM 5604; open only to MBA and MSBAPM students, others with consent.

Discusses data mining techniques that can be utilized to effectively sift through large volumes of operational data and extract actionable information and knowledge (meaningful patterns, trends, and anomalies) to help optimize businesses and significantly improve bottom lines. The course is practically oriented with a focus of applying various data analytical techniques in various business domains such as customer profiling and segmentation, database marketing, credit rating, fraud detection, click-stream Web mining, and component failure predictions.

5770. Advanced Business Analytics and Project Management

Three credits. Prerequisite: OPIM 5604 and 5272 and 5671 and 5668; open only to MSBAPM and MBA students.

Capstone course involving a live data analytics project, where students will need to integrate their knowledge of data analytics and project management. Using the skill sets of predictive modeling, data management, process models, and data mining techniques, students will investigate a real problem through data analytics, and will use their project management skills to complete the project within time and budget constraints.

5771. Enterprise Security, Governance and Audit

Three credits. Prerequisite: Open only to MSBAPM and MBA students, others with consent.

Discusses the business risks arising from digital information processing and identifies ways to prevent, detect, and mitigate negative consequences of information security breaches. First, students will be introduced to the basic principles of information security, its role in reducing information risk exposure, and tools and solutions that can be used to prevent information loss or costly business interruptions. Second, students will explore the role of information technology governance in business organizations, discuss important relevant laws (for example, Sarbanes-Oxley Act of 2002), reporting requirements, and industry standards for IT Governance (for example, COBIT). Third, students will study the process of information systems audit, IT audit tools, and audit procedures to help in detection and prevention of fraud.

5894. Seminar

Variable (1-6) credits. May be repeated for credit.

Introduces many of the most exciting concepts emerging in the field of consumer oriented Internet working, including high-speed access [cable modem, satellites and digital subscriber lines (DSL)] and infrastructure developments such as gigabyte networking with asynchronous transfer mode (ATM). Evaluates the emerging directions in EC that are expected to shape both consumer and business applications in the coming decade. A "macro perspective" is used to examine the technical and managerial aspects of electronic commerce. Focus is on questions such as: What are or will be the key attributes of current and future digital products, payment systems, online retailing, and banking? How are these systems designed and implemented? What are the different mercantile processes and tradeoffs associated with these processes? What impact has global connectivity made on traditional supply-chain(s)?

5895. Special Topics in Information Management

Variable (1-3) credits. Prerequisite: Instructor consent. May be repeated for a total of 12 credits.

Faculty-student interaction on a one-to-one basis involving independent study of specific areas of operations management, operations research and/or information management. Emphasis, selected by the student, may be on theoretical or applied aspects. A written report is required.

6200. Investigation of Special Topics

Variable (1-6) credits. Prerequisite: Open only to doctoral students; instructor consent required. May be repeated for a maximum of nine credits. Students taking this course will be assigned a final grade of S (satisfactory) or U (unsatisfactory).

In-depth investigation in special topics in Operations and Information Management.

6201. Research Methods for Operations and Information Management

Three credits. May be repeated for a total of 12 credits.

Several advanced analytical methods that are relevant to students' areas of research will be studied in depth in this seminar. Topics may include special mathematical programming; complex decision making; linear models; advanced statistical analysis; and stochastic processes.

6202. Seminar in Operations Management

Three credits. May be repeated for a total of 12 credits.

Introduces doctoral students to the current research concerns in the field of Operations Management. Acquaint students with the variety of research tools used in the field, enabling them to critically evaluate the research of other scholars in the field as well as to develop research skills in identifying potential research problems to be analyzed.

6203. Seminar in Management Information Systems

Three credits. May be repeated for a total of 12 credits.

A topic on a significant applied or theoretical aspect of information systems will be chosen. Broadly, these aspects will encompass modeling, design, implementation, testing, and operation of computer information systems, and the implications of information technologies for the organization.