

MBA & MS Management Concentration Summary

Business Analytics

Professor T. Ravichandran

518.276.2035

ravit@rpi.edu

PI 1218

The Business Analytics concentration, like a major, focuses on using information to develop business insights and influence decision-making in organizations. This provides a strong foundation in analytical modeling and statistical methods, as well as skills in data management. It provides hands-on experience through industry projects in applying these skills in data and model driven decision-making in domains such as marketing, supply chain management, healthcare, and finance.

(F) REQUIRED for concentration.

MGMT 6560 Technology Fundamentals for Analytics (F) REQUIRED for concentration

The widespread proliferation of IT-influenced economic activity leaves behind a rich trail of micro-level data, enabling organizations to use analytics and experimentation in both strategy and operations. This course provided a hands-on introduction to the concepts, methods and processes of business analytics. Students will learn how to obtain data and draw business inferences from data by asking the right questions and using the appropriate tools.

MGMT 6570 Advanced Data Resource Management (F)

The primary objective of this course is to introduce the multifaceted role of data as a resource of the organization, in three ways. First, it examines the role of data at the operational, tactical, and strategic levels of the organization. Second, it provides students with knowledge and hands on training of technologies that manipulate data, including structured query language (SQL), extraction transformation and loading tools (ETL), data warehousing (DW), online analytical processing (OLAP), and data mining (DM). The course exposes students to big data management techniques. Finally, the course provides students the theory and hands on training to understand the transformation of data to information.

ISYE 6961 Projects in Big Data Analytics (F)

Many organizations have invested heavily in information technology to help them manage their businesses more effectively and gain a competitive edge. Over the last three decades, increasingly large amounts of critical business data have been stored electronically and this volume is expected to continue to grow considerably in the near future. Yet despite this wealth of data, many organizations have been unable to fully capitalize on its value. **Data mining** is the computationally intelligent extraction of information from large databases. It is the process of automated presentation of patterns, rules and functions from large data bases to make crucial decisions (e.g., in science or business). This course takes a multi-disciplinary approach to **data mining** and knowledge discovery involving statistics, rule and tree induction, neural networks and fuzzy logic. This course requires a project and will put a special emphasis on scientific

data mining with neural networks and computational intelligence in general. Also, recent developments in and text mining will be highlighted in this course. Course is open to **graduate students** and **seniors** of all disciplines.

CSCI 6100 Machine & Computational Learning (F)

Introduction to the theory, algorithms, and applications of machine learning (supervised, reinforcement, and unsupervised) from data: What is learning? Is learning feasible? How can we do it? How can we do it well? The course offers a mix of theory, technique and application with additional selected topics chosen from Pattern Recognition, Decision Trees, Neural Networks, RBFs, Bayesian Learning, PAC Learning, Support Vector Machines, Gaussian processes, and Hidden Markov Models. Students cannot receive credit for both CSCI 4100 and CSCI 6100.

Prerequisites/Corerequisites: Prerequisites: CSCI 2300; an advanced 4000-level algorithms-based CSCI or MATH course; familiarity with probability, linear algebra, and calculus.

CSCI 6390 Database Mining (F)

This course will provide an introductory survey of the main topics in data mining and knowledge discovery in databases (KDD), including classification, clustering, association rules, sequence mining, similarity search, deviation detection, and so on. Emphasis will be on the algorithmic and system issues in KDD, as well as on applications such as Web mining, multimedia mining, bioinformatics, geographical information systems, etc. Students cannot receive credit for both CSCI 4390 and CSCI 6390.

Prerequisites/Corerequisites: Prerequisites: CSCI 2200 and CSCI 2300.

CSCI 6962 Natural Language Processing (F)

This course will introduce state-of-the-art Natural Language Processing (NLP) methods in the last decade. The instructor will cover 15 popular research topics, and select the best-cited and most up-to-date papers for each topic, along with some popular machine learning methods for NLP. The instructor will present a deep survey for each topic. In addition, some practical experiments (implementation of a method or applying some machine learning toolkits to solve a problem) will be conducted based on a series of powerful platforms and techniques. The assignments will involve linguistics, math, and careful thinking. At the end of the course each student should be able to gain enough background to understand the fundamental NLP techniques.

MGMT 6962 Marketing Analytics (S)

With the development of technology, the amount of available information that can help organizations make decisions grows exponentially over the past decades. This information could be structured data such as online transaction data or highly unstructured data such as blogs, tweets and video clips. With the abundant data, firms can extract customer purchasing pattern, identify potential market and forecast sales trends, gain competitive advantage and create substantial value for the company. This class introduces some fundamental statistical models which are very effective in

explaining and predicting marketing patterns using new forms of information emerging from the technology advances. These models can significantly improve the decisions by practitioners as they also offer intuitively sounds descriptions on various observed data patterns. Meanwhile, as more and more firms adopt sophisticated toolkit to conduct business analysis (Excel toolkit, SPSS and etc.), understanding these statistical models can become an essential part of regular business. The contents we covered in this course will be helpful for managers to get the greatest business value in today's data intensive business environment. We will also apply these statistical models to real marketing problems using real marketing data. Students are expected to finish a final project by applying techniques covered in this class on a real world dataset. This is because the core of developing the quantitative skills in this class is through hands-on exercises. This project is designed to enhance students' understanding of the concepts introduced in this class, and to allow students to have the opportunity to absorb the skills rather than just get exposed to them.

MGMT 6350 Supply Chain Analytics (S)

This is a hands on course where students learn a mix of theoretical and practical tools and use them to solve a variety of supply chain problems, both analytically and numerically. Time series, Markov chain, optimal control, linear programming, statistical analysis, and other mathematical tools are used to examine data to understand supply, demand and inventory levels and develop insights for managerial recommendations.

Prerequisites/Corerequisites: MGMT 6100 Statistics for Managerial Decision-Making and MGMT 6460 Advanced Quantitative Methods

MGMT 6720 Internet Marketing (S)

Technology is a vital link in how modern corporations identify, acquire, transact with, and keep their customers. This course provides an introduction to both the technology infrastructure most relevant to the customer relationship, as well as marketing issues that result from the application of computers and communication networks. Topics include issues related to social media, search, online advertising, blogging, customer relationship management, online market segmentation, and marketing of IT products.

MGMT 6160 Applied Analytics and Predictive Modeling (S)

Business analytics enables organizations to leverage large volumes of data in order to make more informed decisions. It encompasses a range of approaches to integrating, organizing, and applying data in various settings. This course develops an understanding of concepts in business analytics and data manipulation. In particular, through hands-on experience with a range of techniques, students will learn to work with large data sets, analyze trends and segments and develop models for predication and forecasting. This course is part of the Master's program in Business Analytics and builds on foundations learned in the Fall semester.

Prerequisites/Corerequisites: MGMT 6100 Statistics for Managerial Decision Making or equivalent

ITWS 6600 Data Analytics (S)

The world at-large is confronted with increasingly larger and complex sets of structured/unstructured information, from cyber and human sources. Traditional enterprises are moving toward analytics-driven approaches for core business functions. Data and information analytics extends analysis (descriptive models of data) by using data mining and machine learning methods, with optimization and validation, to recommend action or guide and communicate decision-making. Thus, analytics is an entire methodology rather than individual analyses or analysis steps.

Prerequisites/Corerequisites: Data Science ITWS/CSCI/ERTH 4350/6350 or permission of instructor

COMM 4880 Interactive Data Visualization (U-Summer)

The course covers interactive, multimedia interface design (for websites and apps) for data visualization or other forms of interactive information design. Innovative designs that explore new directions in interactive data design are highlighted. Topics include multisensory information design using graphics, sound, touch, and large-scale data projection. Interface design topics include user-centered design, information architecture, rapid prototyping, cross-cultural design, and intellectual property. Students may choose the applications they want to design for the class project.

Prerequisites/Corerequisites: Prerequisites: CSCI 1010 or CSCI 1100 or permission of the instructor

ARTS 4870 Creative Data Design (S)

Data design offers a way to reveal, analyze and engage with data from scientific visualization to information design to artistic sonification. At the same time, the translation from abstract data to image and sound carries risks of manipulation and subjective interpretation. This course introduces contemporary practices in the perceptualizing of data using digital tools for creative exploration and critical analysis. It explores the evolution of visualization and the notion of truth through visual representation.

Prerequisites/Corerequisites: ARTS 1020 or COMM 2610 and CSCI 1100.

Finance

Professor Bill Francis

518.276.3908

francb@rpi.edu

PI 1108

The Finance elective set prepares students for a career path in corporate finance and for careers in financial services. The special finance challenges in high-tech industries are explored, as well as the impact of technology on financial markets and the financial manager in modern corporations. Students following the finance concentration may elect two paths: investments or corporate finance. The investments option focuses on financial markets and securities, including stocks, bonds, and derivatives. Students taking this option learn about decision making, such as portfolio choices, making markets in securities and analyzing non-standard forms of investments. The corporate finance option should be pursued by students who are

interested in working and making decisions within firms. This option deals with financing and investment (real and financial) decisions within business entities, such as corporation, sole proprietorship, partnerships or a limited liability corporation.

Note: MS Management students should: (1) waive MGMT 6190 – Introduction to Accounting and Financial Management and replace it with MGMT 7740 – Accounting for Reporting and Control and (2) incorporate MGMT 6020 – Financial Management I as a required elective.

All students in the Finance concentration should take:

MGMT 6430 Financial Statement Analysis (S)

This course is designed to strengthen students' ability to correctly analyze, interpret and evaluate financial statements and their accompanying disclosures. The course is aimed at anyone whose career might involve working with accounting data, and should be especially useful for those interested in consulting and financial analysis. Discussed throughout the semester will be how to use financial accounting information for evaluating past performance and predicting future performance of a company or division. Also discussed will be the key disclosure rules in the United States, the communication methods available to managers, managers' incentives and ability to exert discretion over reported earnings, and the interplay between a company's corporate strategy and its financial reporting policies and practices. The course revolves around a number of topics of recent interest to the business community, including accounting and financial analysis, performance forecasting, the quality of earnings, mergers and acquisitions, purchased R&D, post-employment benefits, executive compensation, and intangible assets. This course assumes that students have a basis knowledge of accounting, finance, economics and business strategy. The focus is on integrating key concepts from each of these areas and applying them to financial decision-making. Half of the course time will be devoted to case analysis. Students are responsible for reaching each case thoroughly and familiarizing themselves with the relevant accounting issues before the class.

Investments Option

Students wishing to pursue the investments path can elect 3 courses from the following list:

MGMT 6240 – Financial Trading and Investing (F, S)

This course introduces interactive trading in financial instruments. Students learn the principles of asset price discovery through real-time trading in a variety of markets, including equities, bonds, options, derivatives. Topics addressed include asset valuation, portfolio management and risk management in the context of real-time trading of financial instruments. The course uses the facilities of the Lally School's Virtual Trading Room. Students will work in teams of two in many trading assignments.

Prerequisites/Corerequisites: Prerequisites: MGMT 6020 and MGMT 6030 or permission of instructor

MGMT 6370 – Options, Futures and Derivatives Markets (F, S)

The purpose of this course is to provide an introduction to second generation financial instruments including forward and future contracts, options, futures options, and swaps on a variety of underlying instruments, including fixed income securities. The fixed income markets will be integrated with the discussion of IRDs (interest rate derivatives).

MGMT 6410 – Investments I (F, S)

The objectives of this course are: 1) to introduce the student to the most important investment instruments currently traded in U.S. financial markets, including forward and future contracts, options, future options, and swaps on a variety of underlying instruments including fixed income securities; 2) to discuss the major distributions of modern financial economics in pricing them; 3) to discuss their uses by the investment community in practical investment strategies.

Prerequisites/Corerequisites: Prerequisite: MGMT 6020

MGMT 7430 – Investments II (S)

Many of the tried and true investment strategies have failed of late to protect the wealth and capital of individuals and organizations. This course provides substantial background into how investment decisions are made in personal, business, and government settings, under the requirement that risk management and wealth preservation are governing factors. Short and long-term investment strategies and instruments are examined, focusing on retirement and workplace benefits.

Prerequisites/Corerequisites: Prerequisite: MGMT 6410

Corporate Finance Option

Students wishing to pursue the corporate finance option can elect 3 courses from the following list:

MGMT 6030 – Financial Management II (S)

This course, built on Economic and Financial Analysis I, provides a conceptual framework whereby accounting, corporate finance and investment decisions can be viewed and understood in a unified context of risk and return as it is applicable to all types of businesses and organizations. The course prepares students for future specialized courses in advanced accounting, corporate finance, financial institutions and markets, investment theory, and entrepreneurial finance. The contemporary issues covered in this course include risk and diversification; asset pricing models; capital structure and financing alternatives; dividend and stock repurchases; corporate governance; mergers, acquisitions, and takeovers; financial distress and reorganization; and different international financial topics.

MGMT 6360 – International Finance (S)

This course analyzes trends and themes in international financial management, especially how financial management and corporate strategies are carried out in

international environments. Topics include foreign exchange markets and risk management, analysis of operating and transaction exposure, international financial markets and banking, international financing and investment. Working capital management and capital budgeting of multinational corporations. Case studies are used.

Prerequisites/Corerequisite: Prerequisite: MGMT 6020 and MGMT 7730

MGMT 6380 – Advanced Corporate Finance (F)

The overall objective of this course is to study advanced corporate finance issues and test empirically the stock market reaction to financing decisions and the issuance of securities. Corporate finance topics include shareholder values and economic value added concepts, as well as corporate governance issues. Financing decisions include venture, capital, and initial public offerings, season equity offerings, stock splits, corporate bonds and bank loans, stock listings on foreign exchanges. Other topics are mergers and acquisitions, pension fund management, financial analysis, and planning. Real stock prices and case studies are used to apply the theoretical concepts.

Prerequisite/Corerequisite: Prerequisites: MGMT 6020 and MGMT 6030

MGMT 6370 – Options, Futures and Derivatives Markets (F, S)

The purpose of this course is to provide an introduction to second generation financial instruments including forward and futures contracts, options, futures options, and swaps on a variety of underlying instruments, including fixed income securities. The fixed income markets will be integrated with the discussion of IRDs (interest rate derivatives).

Management Information System

Professor T. Ravichandran

518.276.2035

ravit@rpi.edu

PI 1218

The MIS concentration, like a major, focuses on the use of information technology for value creation in new and established firms. This concentration equips students with the perspectives and skills to understand the role of IT in organizations, to identify opportunities for IT-enabled business innovations, and to design, develop and deliver the technology infrastructure that enable firms to effectively use IT for value creation.

The MIS concentration courses adopt an interdisciplinary approach that integrate technical concepts with business concepts to enable students to develop the knowledge, perspectives and skills needed for a career in information systems. Students develop the capability to understand business requirements and translate them into technology needs and the skills to design and implement application systems, databases and web based systems. They also develop critical proficiency in areas such as project managements and team-based development.

MGMT 6560 Technology Fundamentals for Analytics (F)

The widespread proliferation of IT-influenced economic activity leaves behind a rich trail of micro-level data, enabling organizations to use analytics and experimentation in both strategy and operations. This course provides a hands-on introduction to the concepts, methods, and processes of business analytics. Students will learn how to obtain data and draw business inferences from data by asking the right questions and using the appropriate tools.

MGMT 6965 Enterprise IT Integration (F)

This course explores a multitude of approaches to IT integration among the various departments of a corporation as well as between the corporation and entities in its external environment. It explores multiple integration methods at the data level, the process level, and the application level. Once the student acquires a strong understanding of these basic methods then the course continues with advanced methods of IT integration. Such methods include Service Oriented Architectures (SOA), Fast Business to Business methods, Middleware methods, Cloud Computing, Supply Chain, and Portal based integration. The course is case study taught using the latest case studies from various consulting companies as they have actually implemented solutions for their corporate customers. The course starts with the exploration and understanding of the three basic approaches to IT integration in a corporation. Those are information based integration, process based integration, and application based integration. Once the student acquires a strong grasp of these basic methods then the course expands with various methods of IT integration techniques within and outside the corporation. We explore the role of Service Oriented Architectures (SOA), Supply Chain integration, Business to Business methods, Middleware types and roles, and Lean Enterprises.

MGMT 6966 IT Project Management (F)

The objective of the course is to bring you through one cycle of an information system implementation, while exposing you to some basic theories within project management. It is expected that you and your team provide an implemented working prototype by the end of the course. By working through the project, the text, the readings, the exams, the quizzes, and the labs you should leave the course understanding the key components of a successful information system implementation. This course requires you to develop knowledge about project management, and subsequently apply this knowledge to technical projects. You will learn how expand your skills and become familiar with learning how to independently teach yourself new technologies.

MGMT 6570 Advance Data Resource Management (F)

The primary objective of this course is to introduce the multifaceted role of data as a resource of the organization, in three ways. First, it examines the role of data at the operational, tactical, and strategic levels of the organization. Second, it provides

students with knowledge and hands on training of technologies that manipulate data, including structured query language (SQL), extraction transformation and loading tools (ETL), data warehousing (DW), online analytical processing (OLAP), and data mining (DM). The course exposes students to big data management techniques. Finally, the course provides students the theory and hands on training to understand the transformation of data to information.

MGMT 6080 Networks, Innovation and Value Creation (F)

This course considers the evolving new models of value creation and business growth being introduced across different industries and examines such critical issues as product and process technology strategy, operational innovation, IT strategies and infrastructures, networks and organization, and finance. Utilizing a series of case studies from across a range of industry networks, students will have a chance to learn how companies can participate in such networks and what unique business resources and capabilities they can employ to enhance their probability of commercial success.

MGMT 6170 Advanced Systems Analysis and Design (S)

This is an advanced course in systems analysis and design that presents conceptual material about both traditional approaches to systems development such as process oriented and data-oriented methodologies and evolving approaches such as object-oriented development methods. Key stages of the systems development life cycle including planning, analysis, and design are the focus of this course. Models and procedures for understanding and modeling an organization's existing and planned information systems are presented. Computer-aided software engineering tools are used to provide hands-on experience in designing information systems. A case-based approach is used to provide students an opportunity to apply the analytical and design techniques covered in the course. In addition, students are expected to do a real-life systems development project. The course also focuses on the issues and challenges in managing systems development.
Prerequisites/Corequisites: Prerequisite: MGMT 6140 or equivalent.

MGMT 6720 Internet Marketing (S)

Technology is a vital link in how modern corporations identify, acquire, transact with, and keep their customers. This course provides an introduction to both the technology infrastructure most relevant to the customer relationship as well as marketing issues that result from the application of computers and communication networks. Topics include issues related to social media, search, online advertising, blogging, customer relationship management, online market segmentation, and marketing of IT products.
Prerequisites/Corequisites: MGMT 4330 or permission of instructor.

Marketing—New Product Development

Professor T. Ravichandran

518.276.2035

ravit@rpi.edu

PI 1218

This elective set is available to students interested in a career path in new product development or in marketing and product management, and is geared toward the special challenges associated with developing and marketing high-tech products. Students focus their attention on understanding the links between a product's design, and the manufacturing and selling/marketing efforts necessary for achieving successful product/market development, commercialization, and management throughout the life cycle.

MGMT 6800 Consumer Behavior and Product Design (F)

This course introduces the motivations and related factors that shape consumers' purchasing decisions. Also considered is the consumer perceptual process and how it affects purchasing behavior and consumer reaction to product designs. The relationship between perception and product design is extended to topics such as design for understanding, universal product design, aesthetics, and industrial design.

MGMT 6530 Making Business Happen (F)

Analyze the process of identifying prospective markets and customers, developing channels, defining the value proposition, selling products and services, and managing a sales force. Learn about tools ranging from customized consultative sales to commodity brokering, customer relationship management systems to trade press articles. Develop the skills to effectively listen, recognize opportunity, verbally persuade, handle objections, and prospect. Develop an understanding of customer needs, approach strategies, and effective presentations.

MGMT 6540 Marketing Communications and Branding Strategy (S)

Advanced study of the promotion management process including market situation analysis, media selection, spending plans, copy strategy, and advertising research methods. The focus is on integrating promotion strategies with buyer needs in terms of unifying brand strategies. Other brand elements include product conceptualization, distribution strategies, and new communication technologies.

Prerequisites/Corequisites: Prerequisite: permission of instructor.

MGMT 6550 Marketing Research (S) REQUIRED for concentration

Marketing strategy decisions are developed in the framework of many case studies. Marketing research techniques, including questionnaire development and data analysis, are introduced and utilized in a team project.

Prerequisites/Corequisites: Prerequisites: MGMT 6100 or permission of instructor.

MGMT 6580 Marketing High-Tech Products (S)

This course deals with the peculiarities of marketing products and services in high-tech environments. High-tech environments are characterized by high dynamism, high

uncertainty, and compressed time cycles. The course consists of case studies, computer simulations, and a team project.

MGMT 6590 Commercializing Advanced Technologies (S)

This 3-credit course views potential breakthrough innovation from the perspective of the project manager, either in the firm or as a start-up organization. This course offers methods and frameworks for commercializing nascent technologies that offer potentially breakthrough value to the market and, therefore, enormous reward for the firm. Additionally, legal and ethical consequences are considered.

MGMT 6720 Internet Marketing (S)

Technology is a vital link in how modern corporations identify, acquire, transact with, and keep their customers. This course provides an introduction to both the technology infrastructure most relevant to the customer relationship as well as marketing issues that result from the application of computers and communication networks. Topics include issues related to social media, search, online advertising, blogging, customer relationship management, online market segmentation, and marketing of IT products. *Prerequisites/Corequisites:* MGMT 4330 or permission of instructor.

MGMT 6600 Research and Development Management (F)

The course deals with the responsibilities of and operating problems faced by managers of research and development. The following areas are included: technology forecasting, technology planning, selection and evaluation of R&D projects, resource allocation, planning, control, and measuring results of R&D. Particular attention is given to creative problem solving, motivating and managing creative individuals, barriers to innovation, and organization alternatives for R&D, including matrix and project organizations.

MGMT 6690 Negotiations (S)

This course is designed to help develop essential expertise in managing negotiations that occur in a broad array of settings. Students will learn to recognize types of negotiation, and gain proficiency in helping to shape beneficial outcomes. Students will develop negotiation skills experientially using a variety of exercises and case studies while implementing useful analytical frameworks.

MGMT 6230 Global Sourcing and Procurement (S)

Sourcing is an important function that has a significant impact on the profitability of firms. This course examines sourcing from a strategic and operational perspective and presents best practices and frameworks for effective sourcing in large and small firms. Topics covered include factors influencing sourcing strategies of firms and the importance of sourcing in supply chain management, procurement strategies for commodities, differentiated products and services, electronic procurement and cost containment strategies, supplier evaluation and selection, negotiation and contracting, and global sourcing strategies.

Prerequisites/Corequisites: MGMT 6100 Statistics for Managerial Decision Making.

Additionally, students should be familiar with basic statistics and have some familiarity with R and Excel.

Supply Chain Management

Professor T. Ravichandran

518.276.2035

ravit@rpi.edu

PI 1218

The Supply Chain Management concentration, like a major, focuses on the design and management of supply chains in manufacturing and service industries. This concentration equips students with the perspectives and skills to design supply chains, develop strategies to optimize supply chain operations, and identify opportunities for deploying IT to create effective demand fulfillment capabilities in firms.

ISYE 6600 Design of Manufacturing System Supply Chains (S)

Dynamics of manufacturing systems and supply chains, lean manufacturing, lead time reduction in manufacturing and service operations, advanced pull systems, concurrent design of products and supply chains, rapid new product introduction, remanufacturing and reverse supply chains, and integration of information technology in supply chain operations. Analysis of models and their application to design and planning problems in manufacturing as well as service systems is emphasized.

Prerequisites/Corequisites: Prerequisites: ISYE 4140 (or equivalent) or permission of instructor.

MGMT 6460 Advanced Quantitative Methods for Business (F)

This course is designed to provide the student with an understanding of how quantitative models, methods, algorithms, and computational techniques can be used to solve both services and manufacturing enterprise problems. Students will investigate how to apply optimization methods using a hands-on implementation approach.

MGMT 6965 Enterprise IT Integration (F)

This course explores a multitude of approaches to IT integration among the various departments of a corporation as well as between the corporation and entities in its external environment. It explores multiple integration methods at the data level, the process level, and the application level. Once the student acquires a strong understanding of these basic methods then the course continues with advanced methods of IT integration. Such methods include Service Oriented Architectures (SOA), Fast Business to Business methods, Middleware methods, Cloud Computing, Supply Chain, and Portal based integration. The course is case study taught using the latest case studies from various consulting companies as they have actually implemented solutions for their corporate customers. The course starts with the exploration and understanding of the three basic approaches to IT integration in a corporation. Those are information based integration, process based integration, and application based integration. Once the student acquires a strong grasp of these basic methods then the course expands with various methods of IT integration techniques within and outside the corporation. We explore the role of Service Oriented Architectures (SOA), Supply

Chain integration, Business to Business methods, Middleware types and roles, and Lean Enterprises.

MGMT 6080 – Networks, Innovation, and Value Creation (F)

This course considers the evolving new models of value creation and business growth being introduced across different industries and examines such critical issues as product and process technology strategy, operational innovation, IT strategies and infrastructures, networks and organization, and finance. Utilizing a series of case studies from across a range of industry networks, students will have a chance to learn how companies can participate in such networks and what unique business resources and capabilities they can employ to enhance their probability of commercial success.

MGMT 6490 – Competitive Advantage and Operations Strategy (F)

This course includes topics such as manufacturing as a competitive weapon; management of quality; manufacturing technology implementation; strategic impact of advanced manufacturing technologies; and manufacturing's role in new product development.

MGMT 6230 – Global Sourcing and Procurement (S)

Sourcing is an important function that has a significant impact on the profitability of firms. This course examines sourcing from a strategic and operational perspective and presents best practices and frameworks for effective sourcing in large and small firms. Topics covered include factors influencing sourcing strategies of firms and the importance of sourcing in supply chain management, procurement strategies for commodities, differentiated products and services, electronic procurement and cost containment strategies, supplier evaluation and selection, negotiation and contracting, and global sourcing strategies.

Prerequisites/Corequisites: MGMT 6100 Statistics for Managerial Decision Making. Additionally, students should be familiar with basic statistics and have some familiarity with R and Excel.

Technological Entrepreneurship

Professor Lois Peters

518.276.2977

peterl@rpi.edu

PI 2110

The Technological Entrepreneurship elective set has been developed for students who have an interest in new venture creation in start-ups and established firms. Students following the technological entrepreneurship concentration may elect two paths: entrepreneurship for start-ups or corporate entrepreneurs. The former focuses on founding a brand new business entity, whereas the latter focuses on creating new growth platforms based on technological innovation within established companies. Both require entrepreneurial behavior.

All students in the Technological Entrepreneurship concentration should take:

MGMT 6620 Introduction to Technological Entrepreneurship (S)

An introductory graduate course in initiating new technology-based business ventures and developing them into self-sustaining and profitable enterprises. Examines the process whereby a person decides to become an entrepreneur, screens opportunities, selects an appropriate product/market target, and obtains the necessary resources. Provides the theoretical and practical knowledge for the preparation of formal business plans. Students enrolled in the full-time MBA program cannot use this course on the Plan of Study. This course is intended for students enrolled in the part-time MBA, M.S. in Management or those seeking degrees in other schools at Rensselaer.

MGMT 6640 Invention, Innovation, and Entrepreneurship (F)

Creativity is the starting point for technological entrepreneurship. Through interaction with faculty and guest speakers, students increase their understanding of the creative process and some of the tools that can be implemented to stimulate and/or manage individual and collective creativity. In addition, through application of these techniques in course activities, students explore and attempt to enhance their own creativity.

Start- Up Option

Then, students wishing to pursue the start-up path can elect 2 courses from the following list:

MGMT 6260 Entrepreneurial Finance (S)

The overall objective of this course is to understand how entrepreneurs and investors create value, noting that their interests do not always coincide. This involves learning about topics which trace out the “venture capital cycle”: opportunity recognition; valuation and evaluation; negotiation; structuring financing contract; managing investment; exit strategy. This course is structured into three modules: valuation, private equity market, and harvesting entrepreneurial value.

MGMT 6590 Commercializing Advanced Technologies (S)

This 3-credit course views potential breakthrough innovation from the perspective of the project manager, either in the firm or as a startup organization. The course offers methods and frameworks for commercializing nascent technologies that offer potentially breakthrough value to the market and, therefore, enormous reward for the firm. Additionally, legal and ethical consequences are considered.

MGMT 6630 Starting up a New Venture (F, S)

An understanding of the critical issues related to starting up a new business is gained through team-based experiential learning. Small teams of students develop a comprehensive business plan that can be used to raise money for a new or relatively new venture. The experiential learning process is enhanced through team meetings with faculty and/or course advisers and through oral presentations to the entire class.

Prerequisites/Corequisites: Prerequisite: MGMT 6620.

MGMT 69xx Social Entrepreneurship – Upon availability of instructor

Social entrepreneurship is defined as using business principles to build organizations that address social problems. Whereas business entrepreneurs measure performance in terms of financial return, a social entrepreneur focuses on furthering social and environmental goals such as poverty, hunger, homelessness, and all forms of pollution. Although social entrepreneurs are most commonly associated with the voluntary and not-for-profit sectors, this need not necessarily be the case. This course examines social entrepreneurship as an emerging business form. The course covers historical and contemporary business model approaches to social entrepreneurial ventures via cases and the popular press. In addition, students work with an organization that is developing a social entrepreneurship venture to help apply business principles to the growth challenges it is facing.

MGMT 6670 Practicum in Technological Entrepreneurship (S)

Provides students with opportunities to learn by text, discussion, and practical fieldwork, how successful new technological ventures are created, developed, and financed. Students work alone or in small teams with guidance from experienced entrepreneurs. Students wishing to take this course are required do so in their first year of study.

Corporate Entrepreneurship Option

Students wishing to pursue the corporate entrepreneurship option can elect 2 courses from the following list:

MGMT 6530 Making Business Happen (F)

Analyze the process of identifying prospective markets and customers, developing channels, defining the value proposition, selling products and services, and managing a sales force. Learn about tools ranging from customized consultative sales to commodity brokering, customer relationship management systems to trade press articles. Develop the skills to effectively listen, recognize opportunity, verbally persuade, handle objections, and prospect. Develop an understanding of customer needs, approach strategies, and effective presentations.

MGMT 6580 Marketing High-Tech Products (S)

This course deals with the peculiarities of marketing products and services in high-tech environments. High-tech environments are characterized by high dynamism, high uncertainty, and compressed time cycles. The course consists of case studies, computer simulations, and a team project.

MGMT 6590 Commercializing Advanced Technologies (S)

This 3-credit course views potential breakthrough innovation from the perspective of the project manager, either in the firm or as a start up organization. The course offers methods and frameworks for commercializing nascent technologies that offer

potentially breakthrough value to the market and, therefore, enormous reward for the firm. Additionally, legal and ethical consequences are considered.

MGMT 6600 Research and Development Management (F)

The course deals with the responsibilities of and operating problems faced by managers of research and development. The following areas are included: technology forecasting, technology planning, selection and evaluation of R&D projects, resource allocation, planning, control, and measuring results of R&D. Particular attention is given to creative problem solving, motivating and managing creative individuals, barriers to innovation, and organization alternatives for R&D, including matrix and project organizations.

MGMT 6700 Corporate Entrepreneurship (S) – upon availability of instructor

Organizations that increase their capacity for entrepreneurship build a foundation for long term competitiveness. This course examines how organizations can build management systems to enable entrepreneurial activities while simultaneously addressing current operational concerns. This tension differentiates the corporate entrepreneurial challenge from the start-up venture. The course focuses on both the organizational and project levels, studying how organizations can build an entrepreneurial capacity, and how project champions can ensure their projects are effectively evaluated, supported, and managed.

MGMT 69xx Social Entrepreneurship—upon availability of instructor

Social entrepreneurship is defined as using business principles to build organizations that address social problems. Whereas business entrepreneurs measure performance in terms of financial return, a social entrepreneur focuses on furthering social and environmental goals such as poverty, hunger, homelessness, and all forms of pollution. Although social entrepreneurs are most commonly associated with the voluntary and not-for-profit sectors, this need not necessarily be the case. This course examines social entrepreneurship as an emerging business form. The course covers historical and contemporary business model approaches to social entrepreneurial ventures via cases and the popular press. In addition, students work with an organization that is developing a social entrepreneurship venture to help apply business principles to the growth challenges it is facing.

MGMT 7070 Managing on the Edge (S)

This course investigates the challenges of managing and leading organizations in situations characterized by their non-linear, unpredictable nature. Students will be challenged to develop innovative responses and solutions, drawing upon the full array of knowledge, skills, and insights they have gained from their two years of MBA study. Along with learning to deal with risk and uncertainty, the soon-to-be MBA graduates will be prepared for addressing the increasing degrees of fluidity and turbulence found in today's business, economic, and competitive environments.

MGMT 6050 Organizational Design and Change – upon availability of instructor

This course addresses how to manage organization-wide structural and cultural changes that lead to organizational designs to enhance the effectiveness of the organization. We will explore change issues of managing growth, resistance, intervention phases, crisis management and inter-group conflict/power, as well as organizational design issues of balancing innovation with predictability and balancing decentralization with centralization. Upon successful completion of this course, students will be able to explain the mechanics of modern organizations, and utilize the principles of organizational theory to design and change their organizations to increase organizational effectiveness.